

Exhibit E

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION**

A. SCHULMAN, INC.,)	
)	
Plaintiff and Counter-Defendant,)	Case No. 1:15 CV 1760
)	
v.)	Judge Patricia A. Gaughan
)	
POLYONE CORPORATION and)	
POLYONE DESIGNED STRUCTURES)	
AND SOLUTIONS LLC)	
)	
Defendants and Counter-Plaintiffs.)	
)	

**DEFENDANTS' INITIAL INVALIDITY
CONTENTIONS PURSUANT TO LOCAL PATENT RULE 3.5**

Defendants PolyOne Corporation and PolyOne Designed Structures and Solutions LLC ("PolyOne") hereby provide to Plaintiff A. Schulman, Inc. ("ASI") their Initial Invalidity Contentions pursuant to Local Patent Rule (LPR) 3.5 (Defendants' Initial Contentions). The following contentions address the claims of the two patents presently asserted by Plaintiffs in their First Amended Complaint (Case No. 1:15-cv-01760-PAG (Doc. 34)) and Amended Initial Infringement Contentions (served on April 18, 2016), namely U.S. Patent No. 8,007,902 ("the '902 patent") and U.S. Patent No. 8,182,906 ("the '906 patent"), collectively referred to herein as "the patents-in-suit." Plaintiffs allege the Defendants infringe claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent, and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent.

The contentions provided herein are preliminary and subject to change. Defendants' invalidity contentions are based on the prior art that Defendants have knowledge of at the present time. Discovery is still ongoing and neither party has exchanged claim construction briefs or arguments relating thereto or expert reports respecting the foregoing claims. Defendants reserve

the right to supplement these Initial Contentions in response to additional discovery, any claim construction by the Court, or arguments made by or on behalf of Plaintiffs.

Nothing in these Initial Contentions shall be understood or deemed to be an express or implied admission or contention as to the proper construction of any term contained within the asserted claims, and the contentions made in this submission may be made in the alternative. Defendants will provide their proposed claim constructions in accordance with the Court's scheduling order of May 3, 2016 (Doc. #40). Additionally, any assertion that a particular reference or references may be combined to show that a claim is obvious shall not be considered an admission of any kind that any single reference in any such combination does not fully anticipate the particular claim. Likewise, any assertion that a particular claim is anticipated shall not be considered an admission that the same claim is not-obvious in view of the prior art. In the event that Plaintiffs assert that any references cannot be combined for any reason or that any claim is not obvious due to secondary considerations, Defendants reserve the right to supplement these Initial Contentions in response to any such arguments.

In accordance with LPR 3.6(a), produced along with these Initial Contentions are copies of the prior art references identified pursuant to LPR 3.5(a).

I. LPR 3.5(a) – Prior Art Under 35 U.S.C. §§ 102 and 103

Pursuant to LPR 3.5(a), Defendants provide the following Table (Table 1) identifying the prior art that they are relying upon at this time which they contend renders the asserted claims of the '902 and '906 patents invalid under 35 U.S.C. §§ 102 or 103.

Table 1. Prior Art that renders the asserted claims of the '902 and '906 patents invalid under 35 U.S.C. §§ 102 or 103.

Inventor/Author	Title and Patent No. or Publication Information	Pub. Date
Extreme HG Sales	Sales of accused product Extreme HG	At least as early as August 23, 2006
Formalloy HG Sales	Sales of accused product Formalloy HG	At least as early as January 6, 2007
George Howell	U.S. Pat. No. 5,972,520; filed 12 FEB 1997; Appl. No. 08/799,535 ("High gloss high impact TPO coextrusion and method of making")	26 OCT 1999
Lilli Manolis Sherman	"Coextrusion adds shine to PP for thermoforming large parts"; <i>Plastics Technology</i> , Oct. 1999, p. 46-47	OCT 1999
Lilli Manolis Sherman	"Materials Close Up: In TPOs, Good Looks are Not Just Skin Deep"; <i>Plastics Technology</i> , Dec. 2000, p. 41-43	DEC 2000
Todd A. Hogan <i>et al.</i>	"Changing the Game in Thermoplastic Polyolefins (TPO) for Cut Sheet Thermoforming," in 65th Annual Technology Conference of the Society of Plastics Engineers, 01/2007; (ANTEC 2007) p. 1127-1132	JAN 2007
Jan H. Schut	"Sheet Extrusion Competition Ups the Ante on Technological Sophistication", <i>Plastics Technology</i> , Feb. 1999, p. 40-43	FEB 1999
Leo R. Novak <i>et al.</i>	U.S. Appl. Pub No. 2005/0070673; filed 27 AUG 2004; Appl. No. 10/928,580 (Thermoformable propylene polymer compositions")	31 MAR 2005
Archived Solvay Webpages	Internet Wayback Machine web capture of Solvay Engineered Polymers, Thermoforming Successful Applications webpage web address: https://web.archive.org/web/20061113223000/http://www.solvayengineeredpolymers.com/products/thermoforming/showthermoforming/0,42455-2-0,00.htm) and the following linked pages: (1) http://web.archive.org/web/20061113225750/http://www.solvayengineeredpolymers.com/static/wma/pdf/7/6/5/8/US_Cargo.pdf ,	13 NOV 2006

	(2) https://web.archive.org/web/20061113225807/http://www.solvayengineeredpolymers.com/static/wma/pdf/7/6/3/1/Caterpillar_Monarch.pdf ;	
Frank Rohrbacher	Intl. Pub. No. WO 89/06598; filed 23 JAN 1989; Int. Appl. No. PCT/US89/00165 ("Thermoplastic polyolefin composite structure")	27 JUL 1989
Randall A. Vogel	U.S. Appl. Pub No. 2002/0055006; filed 12 APR 2001; Appl. No. 09/833,452 ("Multilayer, Co-Extruded, Ionomeric Decorative Surfacing")	9 MAY 2002
Henry H. Smith	U.S. Pat. No. 6,187,233; filed 5 DEC 1998 Appl. No. 09/210,852 ("Automotive trim with clear top coat and method of making same")	13 FEB 2001
SAE J-400	SAE J-400 Test for Chip Resistance of Surface Coatings, SAE International	Nov 2002
ASTM- D 5767	ASTM Standard D 5767 for Instrumental Measurement of Distinctness of Image of Coating Surfaces	2004

II. LPR 3.5(b) – Statements Identifying Prior Art as 35 U.S.C. §102 or §103.

Pursuant to LPR 3.5(b), the following statements identify prior art that anticipates or renders obvious some or all of the asserted claims of the '902 and '906 patents. Some references are identified as both anticipating and as rendering the claims obvious. To the extent the references are not found to anticipate particular claims, the references, considered either alone or in combination with another reference or references identified under LPR 3.5(a), alternatively renders those claims obvious. Defendants reserve the right to assert that a reference utilized in establishing obviousness also anticipates a claim based on inherent information in the reference that would have been known to one of ordinary skill in the art.

Motivation to combine references may flow from (1) the prior art references themselves, (2) the knowledge of one of ordinary skill in the art, or (3) the nature of the problem to be solved.

See e.g., In re Kahn, 441 F.3d 977, 987-88 (Fed. Cir. 2006). Where prior art references appear to provide a motivation to combine, those references and motivation are identified below.

Defendants reserve the right to identify further motivations to combine flowing from any of the sources identified above and further reserve the right to supplement or amend the identified motivations to combine prior art references based on expert or other discovery yet to be completed.

Defendants identify six different prior art references, as well as prior sales of Formalloy HG and Extreme HG, each of which anticipates various claims of the patents at issue. These references and sales are listed in Table 2, below. Each of the patents and respective asserted claims are listed in the left hand column of Table 2, while the references and sales are listed across the top row. Where a particular claim is anticipated under 35 U.S.C. § 102(a) or (b) by a particular reference or sale, an X appears in the corresponding cell. A detailed explanation of how each reference anticipates the claim identified is provided in the claim charts submitted herewith pursuant to LPR 3.5(c).

It is undisputed that the earliest priority date for the asserted patents is May 5, 2008. ASI has accused PolyOne of direct infringement of the asserted patents based on PolyOne's Extreme HG and Formalloy HG products (ASI's First Amended Complaint, ¶¶23, 44, 51). The accused Extreme HG and Formalloy HG products were on sale and sold prior to the effective filing date of the '902 and '906 patents and in some cases more than a year prior to the effective filing date of the '902 and '906 patents. Accordingly, the asserted patents are invalid under 35 U.S.C. §102(a) and §102(b). For example, at least as early as August 23, 2006, a TPO sheet product of the Extreme HG product line was sold to a customer in the United States (Shipped from Spartech Plastics to the customer on Prepaid Invoice No. 435044788 dated August 23, 2006). Similarly,

at least as early as December 2, 2006, a TPO sheet product of the Formalloy HG product line was sold to a customer in the United States (Product shipped from Spartech Plastics to the customer on Prepaid Invoice No. 320118 dated December 2, 2006 and Invoice No. 321773 dated January 6, 2007). Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. *Vanmoor v. Wal-Mart Stores, Inc.*, 201 F.3d 1363, 1366 (Fed. Cir. 2000).

Reexaminations of the '902 and '906 Patents.

Defendants note that the '902 patent and the '906 patent underwent *ex parte* reexamination proceedings (Reex. No. 90/013,513; 90/013,611 for the '902 patent, later consolidated into one reexamination; and 90/013,612 for the '906 patent). The Patent Office initiated the reexamination proceedings for the claims at issue based on significant new questions of patentability (SNQ) raised by the Howell, Sherman-1999, Sherman-2000, Hogan, Schut and Novak references, alone or in combination with various secondary references including Rohrbacher, Vogel, and Smith. After determining that SNQs were raised for each of the challenged claims, reexaminations were initiated. Each of the reexamined claims in Reex. No. 90/013,513 and 90/013,612 was rejected based primarily on a combination of Novak in view of Vogel and Rohrbacher. The Examiners focused on Novak as, allegedly, the most relevant reference and found the Howell, Sherman-1999, Sherman-2000, Hogan and Schut references to be "less pertinent."

In response to the rejections, Plaintiff conducted interviews with the Reexamination Examiners and filed responses with Expert Declarations to distinguish the claimed multilayered materials and formed products over the combination of Novak in view of Vogel and Smith. A

significant point made by Plaintiff to distinguish over Novak was that Novak required the use of a coupling agent in the polyolefin materials to provide added melt strength. According to the Declarations of Dennis Smith (the inventor) and Dr. Bryan Coughlan, the presence of the coupling agent would have resulted in a low DOI. In the Notice of Intent to Issue a Reexamination Certificate for each of the patents, one of the primary reasons given by the Examiners for maintaining the claims was that the structures of Novak would not necessarily be capable of a DOI of 70 or greater due to the presence of the coupling agent in the polyolefin material. This conclusion was based on the Smith and Coughlan Declarations. Significantly, none of the Howell, Sherman-1999, Sherman-2000, Hogan or Schut references of record in the reexaminations, and relied upon by Defendants in these Initial Contentions, require or even disclose the use of a coupling agent in the polyolefin material or elsewhere. The Examiners in the reexamination proceedings appear to have overlooked this fact. In addition, the Archived Solvay Webpages relied upon herein were not before the Examiners in the reexaminations and also do not disclose or require the use of coupling agents in the polyolefin polymers.

European Opposition to Corresponding European patent No. 2 460 640.

A preliminary, non-binding opinion (dated June 13, 2016) of a European Opposition proceeding in a corresponding European Patent (EP 2 460 640) also has concluded that the Novak reference (designated D1 in the European proceeding) and the Howell reference (designated D2 in the European proceeding) were the closest prior art (see Annex to the Summons to Attend Oral Proceedings Pursuant to Rule 115(1) EPC dated June 13, 2016, submitted herewith). The claims at issue in EP 2 460 640 limit the polyolefin to a polypropylene/polyethylene copolymer (see copy of claims from the European Patent Register File for EP 2 460 640). The asserted claims of the '902 and '906 patents do not limit the choice

of polyolefin in the any of the layers. Thus, the polyolefins of claims in EP 2 460 640 are more narrowly defined than in the asserted claims of the '902 and '906 patent.

It is noteworthy that there are two other corresponding European Patents (EP 2 142 369 B1 and EP 2 177 354 B1) and one corresponding pending European application (EP 2 851 196 A1) that claim multilayer structures similar to the claimed structures in the '902 and '906 patents and to EP 2 460 640 (see copies of claims from European Patent Register files of each patent or application). The claims in these other European patents and the pending application all also limit the clear and colored polyolefin layers to require the presence of a polypropylene/polyethylene copolymer, e.g., as in EP 2 460 640, and the working examples 2-6 of the '902 and '906 patents (see e.g., col 16, line 51 to col. 19, line 34 of the '902 patent specification). None of the corresponding European patents or application define the polyolefins of the claims so broadly as the claims of the '902 and '906 patent.

The EPO opposition division's non-binding opinion in advance of oral proceedings is that A. Schulman's EP 2 460 640 lacks inventive step in view of D1 or D2 as the closest prior art. The opinion also acknowledges that D9, D10, or D11 (the Hogan, Sherman-1999 and Sherman-2000 references, respectively) might be considered the closest prior art (*id.*). The opinion states that it seems no objective technical problem has been solved and that it would appear to be routine measure for a skilled person to provide a structure with the DOI and gravelometer properties (*id.*). Thus, the claims at issue in the Opposition to EP 2 460 640, although narrower in scope than those of the '902 and '906 patents, still have preliminarily been found to lack an inventive step (akin to obviousness in the U.S.) in the European Opposition proceeding.

Table 2. References and Sales that anticipate various claims of the '902 and '906 patents under §102(a), §102(b) or both §102(a) and §102(b).

	Howell	Sherman -1999	Sherman -2000	Hogan	Schut	Solvay	Extreme HG Sales	Formalloy HG Sales
'902 Patent Claims								
1							X	X
5							X	X
10							X	X
11							X	X
21							X	X
23							X	X
25							X	X
36	X		X	X	X	X	X	X
'906 Patent Claims								
39	X	X	X	X	X	X	X	X
40	X	X		X	X		X	X
42	X	X	X	X	X		X	X
46	X	X	X	X	X		X	X
53	X	X		X	X		X	X
55	X	X	X	X	X	X	X	X
77	X	X	X	X	X	X	X	X

To the extent that it is ever determined that any of the above references lacks an element of an asserted claim that Defendants contend the reference contains, the other references identified above render that claim obvious, considered alone or in combination with one or more of the other references identified in response to LPR 3.5(a) above. The particular references and the motivation to combine the references are dependent on the specific element(s) that may be found lacking in the primary reference.

With respect to the combination of references, any reference identified pursuant to LPR 3.5(a) could serve as a primary reference and be combined with any other reference. Defendants'

analysis under 35 U.S.C. §103 setting forth particular references as primary references shall not be construed as an admission that any other reference could not or should not be utilized as a primary reference. Any of the references may be considered either separately or in combination with other references. Reference to a "POSITA" shall be understood to be a reference to a person having the common sense, ordinary creativity, and ordinary skill in the art at the time that the application for the patent containing the relevant claim was filed. Each combination of prior art includes not only the references identified, but also the ordinary understanding, knowledge and creativity of a POSITA.

Additional identifications of particular structures corresponding to the elements of the claims referred to in the obviousness analysis are set forth in the respective §102 claim chart for the references identified. Where only a dependent claim is addressed, it shall be understood that the Defendants assert that the particular dependent claim is invalid as being dependent on a claim that is anticipated by the primary reference utilized in asserting obviousness of the dependent claim or as being dependent on a claim that is obvious for the reasons the particular independent claim from which the dependent claim depends. It should also be understood that the logic, e.g. motivation to combine, discussed in the various sections below can also be combined with other sections as well. The following Sections 1-8, below provide Defendants Initial Contentions with respect to Obviousness.

1. **Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent**
 - **Primary Reference: Howell et al.**
 - **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

The Howell reference is a United States Patent (No. 5,972,520) issued to George Howell on October 26, 1999, entitled "High Gloss High Impact TPO Coextrusion and Method of Making."

- 1.1. **Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.**

Howell describes two-layered, coextruded polyolefin materials that are identical or substantially identical in structure to the two-layered materials disclosed in the '902 patent. In particular, Howell discloses a multilayer structure (col. 2, l. 50-53; col. 3, l. 4-11) comprising: a polyolefin layer (col. 2, l. 50-52; col. 3, l. 4-6; col. 3, l. 26-33; Table 2); a polyolefin backing layer (col. 2, l. 52-53; col. 3, l. 6-11; col. 3, l. 34-40); and the polyolefin and backing layers are coextruded (col. 2, l. 51; col. 3, l. 4-11; Table 2). FIG. 1 of Howell illustrates the direct coextrusion of two melted polymer streams (20 and 30) which come together to form the two layers of the sheet, without any intervening adhesive between the layers (col. 3, l. 4-11; and FIG. 1, which shows direct coextrusion without adhesive between layers).

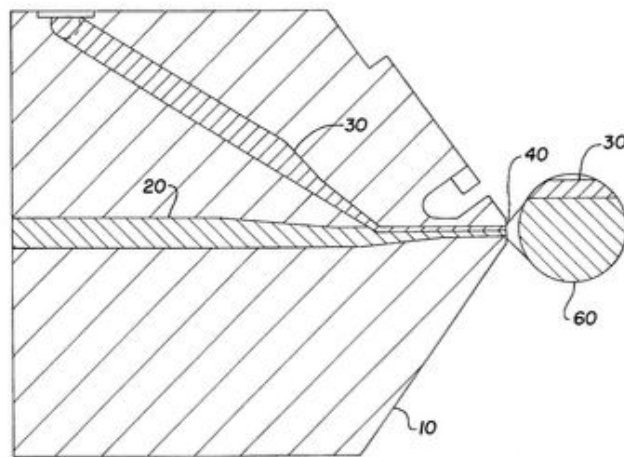


Fig. 1

(Howell, FIG. 1).

Howell teaches the use of the same types of polyolefin polymers (e.g. random copolymer polypropylene, metallocene polyethylene, block copolymer polypropylene copolymers; col. 2, l. 53; col. 3, l. 26-40) as disclosed in the '902 patent (e.g., compare the polymers of Howell, above, with the polymers in the '902 patent col. 4, l. 62 through col. 6, l. 22). No adhesive was used between the layers in the Howell reference. Coextrusion inherently results in the materials being permanently bound at a layer interface, as required by the claims. Claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layers of Howell have a random microstructures. Consequently, the structures and formed products disclosed by Howell are structurally substantially the same as the structures and formed products claimed in the '902 and '906 patents (i.e., a polyolefin cap layer

coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers).

Although Howell discloses two-layered polyolefin materials and formed products with the identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, this reference does not explicitly disclose a combination of a colored polyolefin layer in addition to the clear polyolefin layer, and does not explicitly disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

Of relevance to the property limitations, Howell discloses that "[g]lossy parts, for example the finish on a new automobile, are aesthetically appealing. Plastic manufacturers are continually striving for higher gloss surfaces to make their plastic parts more appealing and to open new markets for their plastics," which is relevant to DOI, which is a measure of the reflective qualities of the surface (col. 1, ll. 18-20). Howell also teaches: "Based on the above formulations, a thin cap layer coextruded over a more impact resistance core layer with the above composition is preferred. It has a high gloss, high impact quality, is relatively inexpensive, and is easily stabilized for outdoor applications." (col. 5, ll. 56-60). A material that does not pass a gravelometer test would be of no use in such outdoor applications where high impact quality is of importance.

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1

for three layer materials would necessarily be present in the two-layer materials disclosed by Howell, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used to make the material. In the present case, the raw materials and processing conditions used by Howell are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures specified in the '902 and '906 patents necessarily would be present in the materials of Howell. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly disclosed by Howell are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

1.1.1. Secondary References - Novak.

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify Howell by adding the colored polyolefin layer of Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. [0013], [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

1.1.2. Secondary References - Rohrbacher, Vogel, and Smith.

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific

measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Howell and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at least 60, and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI or 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and

glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

1.1.3. Motivation to Combine.

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine aesthetic design choice. A POSITA would have been motivated to combine the teachings of Howell and Novak with Rohrbacher, Vogel and/or Smith, as evidenced by SAE J-400, due to the similar nature of the layered polyolefin sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

1.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher,

Vogel and Smith, as evidenced by SAE-J-400, as discussed in Section 1.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While Howell does not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE-J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

1.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE-J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE-400, as discussed in Section 1.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAEJ -400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

1.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

1.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Howell teaches that the primary object of the invention is to provide a high gloss, high impact resistant thermoformed material (col. 2, l. 29-30). Howell also includes examples where the coextruded sheet materials were actually thermoformed (col. 5, l. 60-67). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

1.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. The Examples of the Howell and Novak references do not utilize paint in the multilayer structures. Additionally, Smith teaches the desirability of using pigmentation in the polyolefin materials to eliminate the need for painting (see e.g., Abstract and col. 4, l. 43-46). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

1.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. Howell does not utilize, require or teach the use of adhesive in the multilayer structures described therein, nor does Novak. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

1.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed above in Section 1.1, Howell explicitly discloses two-layered coextruded sheet products that include a polyolefin layer and a colored polyolefin backing layer having a random microstructure. Thus, claim 36 would have been obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 1.1, above.

1.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Howell, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 1 of the '906 patent would have been obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 1.1, above.

1.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.9 above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

1.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.9 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice. Consequently, Howell in

view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

1.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.9 above. Howell teaches that the primary object of the invention is to provide a high gloss, high impact resistant thermoformed material (col. 2, l. 29-30). Howell also includes examples where the coextruded sheet materials were actually thermoformed (col. 5, l. 60-67). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

1.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Howell, Novak, Rohrbacher, Vogel and Smith references are thermoplastic polyolefin materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over Howell in view of Novak and one or more of Rohrbacher,

Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 1.8, above.

1.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.13 above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Howell also discloses a multilayer polyolefin sheet material with a polyolefin cap layer that is 15 mils in thickness (col. 4, ll. 27-29). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

1.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.13 above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Howell (col. 3, l. 56 through col. 4, l. 21) discloses working example (HPP over filled CPP) which exhibited a 60° gloss of 87 and a 20° gloss of 63. Table 2 of Novak also discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with

the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

1.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

1.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 40 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Howell also discloses a polyolefin backing layer of 200 mils in thickness (col. 4, ll. 26-29.). Consequently, Howell in

view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

1.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 1.13, above. Howell teaches that the primary object of the invention is to provide a high gloss, high impact resistant thermoformed material (col. 2, l. 29-30). Howell also includes examples where the coextruded sheet materials were actually thermoformed (col. 5, l. 60-67). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

1.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Howell in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. Howell discloses the identical or substantially identical method steps as set forth in claim 77 of the '906 patent. In particular, Howell discloses a method of making a multilayer material (col. 3, l. 4-11 and l. 24-41) comprising: coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and a colored polyolefin layer, together with a polyolefin backing layer to form a multilayer structure (col. 3, l. 4-11 and l. 24-41); wherein each coextruded layer is permanently bonded at a layer interface (col. 3, l. 4-11; FIG. 1 shows direct coextrusion without

any other layer between layers); and the interface is exclusive of an adhesive layer (col. 3, l. 4-11; FIG. 1 shows direct coextrusion without adhesive between layers). The polyolefin polymers used in the layers of the coextruded materials described by Howell are of the same type as the polyolefin polymers (e.g., polypropylene random copolymer and TPO) described as useful for the multilayer layer materials and formed products of the '906 patent.

Additionally, the claim recites that the structure has the characteristics of at least one of: (A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and (B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure. Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

Howell addresses the problem of providing glossy or shiny surfaces of automobile finishes (col. 1, lines 17-19) for which high DOI would be desirable, and would need to be resistant to impact (e.g., passing the gravelometer test). The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 1.1.1 to 1.1.3, above, and are equally applicable to claim 77.

In addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (Ex. 6, par. [0052] and Table 2, p.9, Examples 10-16, PP-2). The '906 patent

indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of Howell based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the materials disclosed by Howell and Novak. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

- 2. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent**
- **Primary Reference: Sherman-1999.**
 - **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

The Sherman-1999 reference is an article authored by Lilli Manolis Sherman in the October 1999 issue of the trade magazine *Plastics Technology*, entitled "Coextrusion Adds Shine to PP for Thermoforming Large Parts".

- 2.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.**

The Sherman-1999 article discloses developments in the use of thermoplastic polyolefins (TPO) in commercial large-part thermoformed products, such as boat decks, automobile, and truck exterior parts (p. 46, right col. first par.; p. 46, picture and caption to the right of the picture), i.e., for the same purpose as the materials disclosed in the '902 patent. The article

discloses a multilayered structure comprising coextruded layers of polyolefin-based polymers as disclosed in the '902 patent, which was developed by Montell Polyolefins:

"New coextruded resin combinations are making polypropylene a contender for large thermoformed parts in outdoor uses from pleasure boats to automotive exterior trim. A major developmental program at Montell Polyolefins, Wilmington, Del., is aimed at giving PP-based sheet the right combinations of processability, glossy appearance, and ruggedness to compete cost-effectively with weatherable styrenics, acrylic, and even fiberglass/polyester thermoset composites." (p. 46, right col. first par.).

Sherman-1999 describes two-layered, coextruded polyolefin materials and formed products that are identical or substantially identical in structure to two-layered materials disclosed in the '902 patent. In particular, Sherman-1999 discloses a multilayer structure (p. 46, middle col. par. 2; p. 47, middle col., par. 3) comprising: a polyolefin layer (p. 47, first col., par. 2); a thermoplastic polyolefin backing layer (p. 46, left col., par. 1; p. 46, middle col., par. 3; p. 46, right col., last par.; p. 47, left col., par. 1; p. 47, entire middle col. and right col.); the polyolefin and backing layers are coextruded (p. 46, middle col. par. 2; p. 47, middle col., par. 3), and are permanently bonded at a layer interface (this is an inherent feature of coextrusion; the reference refers to coextrusion and does not refer to any intervening layer between the coextruded layers); and the interface is exclusive of an adhesive layer (the reference refers to coextrusion and does not refer to any intervening adhesive).

The polyolefin polymers used in the layers of the coextruded materials described by the Sherman-1999 reference are of the same types (e.g., polypropylene homopolymers and copolymers, TPO; p. 46, left col. second par., p. 46, middle col. third par.) as the polyolefin polymers described as being useful in the multilayer structures and formed products of the '902 patent (e.g., compare the polymers of Sherman-1999, above, with the polymers in the '902

patent, col. 4, l. 62 through col. 6, l. 22). The article reports that Montell is capable of producing two and three layer sheets (p. 46, middle col. second par.). No adhesive between the layers of the material is mentioned in the Sherman-1999 reference. Coextrusion inherently results in the materials being permanently bound at a layer interface, as required by the claims. Claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layers of Sherman-1999 have a random microstructures. Consequently, the structures and formed products disclosed by Sherman-1999 are structurally substantially the same as the structures and formed products claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers).

Note that Sherman-1999 also discloses that the sheet materials were thermoformed into a commercial boat deck for a 9ft Disney World boat (p. 47, middle col., and picture on page 47). Given the reputation of Disney Corporation for high standards of quality and showmanship, the boat deck surely would have had a highly reflective (high DOI) surface and would have passed a gravelometer test. Anything else would be inconsistent with the Disney image.



Although Sherman-1999 discloses two-layered polyolefin materials and formed products with identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, this reference does not explicitly distinguish between clear and colored polyolefin layers, specify that the backing layer has a random microstructure, or disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

Of relevance to the property limitations, Sherman-1999 discloses that "[n]ew coextruded resin combinations are making polypropylene a contender for large thermoformed parts in outdoor uses from pleasure boats to automotive exterior trim." (p. 46, left col., first par.). A material that does not pass (score of 1 or greater) a gravelometer test (an automotive industry test) would be of no use in automotive exterior trims. Sherman-1999 also discloses the gloss level of the PP sheet is over 80%, equal to that of ASA-capped ABS, which is relevant to DOI (a measure of the reflective qualities of the surface) (p. 47, right col., first par.).

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and

gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 for three layer materials would necessarily be present in the two-layer materials disclosed by Sherman-1999, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly disclosed by Sherman-1999 are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

2.1.1. Secondary References - Novak.

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify Sherman-1999 by adding the colored polyolefin layer of Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. [0013], [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

2.1.2. Secondary References - Rohrbacher, Vogel, and Smith.

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific

measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Sherman-1999 and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at least 60, and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI or 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l.

47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

2.1.3. Motivation to Combine.

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine aesthetic design choice. A POSITA would have been motivated to combine the teachings of Sherman-1999 and Novak with Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

2.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While Sherman-1999 does not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). In addition, Sherman-1999 suggests coextrusion of two and three layer sheets (p. 46, middle col. second par.). Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

2.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

2.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

2.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Sherman-1999 explicitly teaches thermoformed parts (p. 46, right col. first par., p. 47, middle col., and picture on page 47). Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher,

Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

2.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. Sherman-1999 and Novak do not teach the use of paint in the multilayer structures described therein. Additionally, Smith teaches the desirability of using pigmentation in the polyolefin materials to eliminate the need for painting (see e.g., Abstract and col. 4, l. 43-46). Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

2.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. Sherman-1999 does not utilize, require, or teach the use of adhesive in the multilayer structures described therein, nor does Novak. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated. Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and

Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

2.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". As discussed above in Section 2.1, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400 for the same reasons as claim 1, discussed in Section 2.1, above.

2.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Sherman-1999, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 1 of the '906 patent would have been obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 2.1, above.

2.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.9 above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

2.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.9 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice. Consequently, Sherman-

1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

2.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.9 above. Sherman-1999 also explicitly teaches thermoformed products (p. 46, right col. first par., p. 47, middle col., and picture on page 47). Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

2.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Sherman-1999, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over Sherman-1999 in view of Novak and one or more of

Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 2.8, above.

2.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.13 above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Sherman-1999 explicitly discloses this limitation ("We are now running PP-based materials 0.1 to 0.3 in. thick on conventional heavy-gauge thermoforming machines ... a coextruded sheet of which 80% is a core of HMS PP and 20% is a cap layer of a highly crystalline specialty grade of PP", p. 47, left and middle cols.; 20 % of 0.1 inches = 0.02 inches = 20 mil). Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

2.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.13 above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe

similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice.

Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

2.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

2.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 40 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Sherman-1999

explicitly discloses this limitation ("We are now running PP-based materials 0.1 to 0.3 in. thick on conventional heavy-gauge thermoforming machines ... a coextruded sheet of which 80% is a core of HMS PP and 20% is a cap layer of a highly crystalline specialty grade of PP", p. 47, left and middle cols.; 80 % of 0.1 inches = 0.08 inches = 80 mil; 20% of 0.1 inches = 20 mil).

Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

2.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 2.13, above. Sherman-1999 explicitly teaches thermoformed products made from the polyolefin materials (p. 46, right col. first par., p. 47, middle col., and picture on page 47). Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

2.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. Sherman-1999 discloses the identical or substantially identical method steps as set forth in claim 77 of the '906 patent (e.g., coextrusion of two polyolefin materials; see Section 2.1, above).

Additionally, the claim recites that the structure has the characteristics of at least one of:

(A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and

(B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure.

Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

Sherman-1999 addresses the problem of providing glossy or shiny surfaces of automobile finishes (see p. 47) for which high DOI would be desirable, and would need to be resistant to impact (e.g., passing the gravelometer test). The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith regarding the DOI and the gravelometer property limitations are addressed in Sections 2.1.1 to 2.1.3, above, and are equally applicable to claim 77.

Novak also discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (Ex. 6, par. [0052] and Table 2, p.9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or

greater and the requisite gloss values for the polyolefin layer of Sherman-1999 based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the materials disclosed by Sherman-1999 and Novak. Consequently, Sherman-1999 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

- 3. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent**
- **Primary Reference: Sherman-2000.**
 - **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400.**

The Sherman-2000 reference is an article authored by Lilli Manolis Sherman in the December 2000 issue of the trade magazine *Plastics Technology*, entitled "Materials Close Up: In TPOs, Good Looks are Not Just Skin Deep".

3.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Sherman-2000 describes two-layered, coextruded polyolefin materials and formed products that are identical or substantially identical in structure to the two-layered materials and formed products disclosed in the '902 patent. In particular, Sherman-2000 discloses a multilayer structure (p. 41, right col.) comprising: a polyolefin layer (p. 41, right col. par. 2); a polyolefin backing layer (p. 41, right col. par. 2); the polyolefin and backing layers are coextruded (p. 41, right col. par. 1 and par. 2), and are permanently bonded at a layer interface (this is an inherent feature of coextrusion; the reference refers to coextrusion and does not refer to any intervening layer between the coextruded layers); and the interface is exclusive of an adhesive layer (the reference refers to coextrusion and does not refer to any intervening adhesive).

The polyolefin polymers used in the layers of the coextruded polyolefin sheet materials described by the Sherman-2000 reference (e.g., high-gloss polypropylene, non-rubber-modified TPO, high-melt-strength (HMS) polypropylene; p. 41, right col., second par.; p. 42, left col., first par.) are the same types of polyolefin polymers described in the '902 patent (e.g., compare the polymers of Sherman-2000, above, with the polymers in the '902 patent, col. 4, l. 62 through col. 6, l. 22). No adhesive between the layers of the material is mentioned in the Sherman-2000 reference. Coextrusion inherently results in the materials being permanently bound at a layer interface, as required by the claims. Claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layers of Sherman-2000 have a random microstructures. Consequently, the structures and formed products disclosed by Sherman-2000 are structurally substantially the same as the structures and formed products claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers).

The materials reportedly were commercialized for a pick-up truck bumper fascia with molded-in color (i.e., formed products as described in the '902 patent). Sherman-2000 also reports that an ATV-engine cover was under development (p. 41, right col., second par.). The article provides photographs of the bumper fascia and ATV engine cover (p. 42).



The photographs show colored automobile body parts, and the caption to picture indicates that the panels include "molded-in color".

Although Sherman-2000 discloses two-layered polyolefin materials and formed products with the identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, this reference does not explicitly disclose a combination of a colored polyolefin layer in addition to the clear polyolefin layer, and does not explicitly disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

Of relevance to the property limitations, Sherman-2000 discloses that the "first commercial use of one of these thermoformed coex structures with molded in color will be a bumper fascia for a pick-up truck. Also in development is an engine cover for an ATV (all-terrain vehicle)." (p. 41, right col.). A material that does not pass (score of 1 or greater) a gravelometer test (an automotive industry test) would be of no use in such exterior body parts,

especially for ATV vehicles which are likely to be exposed to debris such as gravel and stones. Sherman-2000 also discloses multilayered structures with gloss values above 80%, which is relevant to DOI (p. 41, right col.).

Additionally, Sherman-2000, like Sherman-1999, discloses that the sheet materials were thermoformed into commercial products (automotive and ATV surfaces) (p. 41, right col., second par.). Given the propensity in the automotive industry for shiny, reflective surfaces, and the demand of the ATV industry for materials that would be impact resistant, particularly resistant to gravel impact, it is unlikely that these commercial products would not have passed the gravelometer test or would not have had high DOI, as required by the claims of the '902 patent.

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 would necessarily be present in the two-layer materials disclosed by Sherman-2000, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used to make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer

test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly disclosed by Sherman-1999 are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

3.1.1. Secondary References - Novak.

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify Sherman-2000 by adding the colored polyolefin layer of Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing

layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. (0013], [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

3.1.2. Secondary References - Rohrbacher, Vogel, and Smith.

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually

compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Sherman-2000 and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at least 60, and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI of 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

3.1.3. Motivation to Combine.

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact

resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine aesthetic design choice. A POSITA would have been motivated to combine the teachings of Sherman-2000 and Novak with Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

3.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While Sherman-2000 does not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

3.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

3.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already

known in the art. Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

3.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Sherman-2000 explicitly teaches formed products (p. 41, right col. through p. 42, left col., first par.). Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

3.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. Sherman-2000 teaches molded-in color (see e.g., caption of picture on p. 42), as opposed to painted surfaces. Additionally, Smith teaches the desirability of using pigmentation in the polyolefin materials to eliminate the need for painting (see e.g., Abstract and col. 4, l. 43-46). Consequently, Sherman-

2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

3.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. Sherman-2000 does not utilize, require or teach the use of adhesive in the multilayer structures described therein, nor does Novak. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated. Consequently, Sherman in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

3.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed above in Section 3.1, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over Sherman-2000 in view of Novak and one or more

of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 3.1, above.

3.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Sherman-2000, Novak, Rohrbacher, Vogel and Smith references are thermoplastic polyolefin materials (polyolefin materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 1 of the '906 patent would have been obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 3.1, above.

3.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Sherman-2000 discloses the structure has a gloss of 75 or greater at a 60° angle (p. 42, left col.), but does not explicitly provide a 20° glass value. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which

had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

3.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice. Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

3.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Sherman-2000 explicitly teaches formed

products made from the multilayer polyolefin sheet materials (p. 41, right col. par. 1 and par. 2; p. 47, middle col., par. 3). Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

3.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Sherman-2000, Novak, Rohrbacher, Vogel and Smith references are thermoplastic polyolefin materials (polyolefin materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 3.8, above.

3.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.13 above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. While Sherman-2000 does not disclose this feature, the reference does disclose a total thickness of 240

mil for the multilayer sheet material, of which 80% (192 mil) is the core layer (the TPO) and 20% (48 mil) is the cap polyolefin layer (p. 41, right col. par. 2); however, the selection of the top layer thickness represents nothing more than optimization through routine experimentation, in the absence of evidence that the maximum cap layer thickness of 20 mils is critical. In addition, Novak discloses polyolefin layer thicknesses in the range of the claim (see Novak par. [0042]). Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

3.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.13 above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice. Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

3.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.1 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

3.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 40 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Sherman-2000 explicitly discloses a total thickness of 240 mil for the multilayer sheet material, of which 80% (192 mil) is the core layer (the TPO) and 20% (48 mil) is the cap polyolefin layer (p. 41, right col. par. 2). Sherman-2000 does not disclose the 2.5 to 20 mil thickness for the cap polyolefin layer of claim 40; however, the selection of the top layer thickness represents nothing more than optimization through routine experimentation. In addition, Novak discloses polyolefin layer

thicknesses in the range of the claim (see Novak par. [0042]). Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

3.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 3.13, above. Sherman-2000 explicitly discloses formed products made from the polyolefin sheet materials (p. 41, right col., and the picture on p. 41). Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious

3.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. Sherman-2000 discloses the identical or substantially identical method steps as set forth in claim 77 of the '906 patent. In particular, Sherman-2000 discloses a method of making a multilayer material comprising: coextruding a polyolefin cap layer with a polyolefin base layer to form a multilayer structure as discussed above with respect to claims 1 and 39 of the '906 patent in Sections 3.1 and 3.13, above.

Additionally, the claim recites that the structure has the characteristics of at least one of:

(A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and

(B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure.

Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method. The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 3.1.1 and 3.1.2, above and are equally applicable to claim 77.

In addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (Ex. 6, par. [0052] and Table 2, p.9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of Sherman-2000 based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the

materials disclosed by Sherman-2000 and Novak. Consequently, Sherman-2000 in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

4. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent

- **Primary Reference: Hogan**
- **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

Hogan is an article written by Todd A. Hogan et al. in January of 2007 entitled "Changing the Game in Thermoplastic Polyolefins (TPO) for Cut Sheet Thermoforming." .

4.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Hogan describes two-layered, coextruded polyolefin materials and formed products that are identical or substantially identical in structure to two-layered materials in the '902 patent. In particular, Hogan discloses a multilayer structure (p. 1127, left col., par. 1 (Abstract); p. 1129, right col., par. 3) comprising: a polyolefin layer (p. 1129, right col., par. 3; p. 1132, Table 3, bottom row); a polyolefin backing layer (p. 1127, left col., par. 1; p. 1127, right col., par. 4; p. 1128, right col., par. 3; p. 1129, left col., par. 3; p. 1129, right col., par. 3; p. 1132, Table 3, bottom row); the polyolefin and backing layers are coextruded (p. 1127, left col., par. 1, p. 1129, right col., par. 3), and are permanently bonded at a layer interface (this is an inherent feature of coextrusion; the reference refers to coextrusion and does not refer to any intervening layer between the coextruded layers); and the interface is exclusive of an adhesive layer (the reference refers to coextrusion and does not refer to any intervening adhesive). The polyolefin polymers used in the layers of the coextruded materials described by Hogan (see e.g. p. 1127, right col., fourth par.: "TPO formulations typically consist of three general components: polypropylene, elastomer, and filler"; p. 1128, right col., last par. "homopolymer PP") are the same type as the

polyolefin polymers described in the '902 patent (e.g., compare the polymers of Hogan, above, with the polymers in the '902 patent, col. 4, l. 62 through col. 6, l. 22). Coextrusion inherently results in the materials being permanently bound at a layer interface, as required by the claims. As noted above, claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layers of Hogan have a random microstructures. Consequently, the structures and formed products disclosed by Hogan are structurally substantially the same as the structures and formed products claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers).

Although Hogan discloses two-layered polyolefin materials and formed products with identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, this reference does not explicitly distinguish between clear and colored polyolefin layers, specify the random microstructure of the backing layer, or disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

Of relevance to the property limitations, Hogan discloses that the TPO materials are used in the transportation industry and concludes that the materials disclosed in the reference "demonstrate excellent physical properties" including impact resistance, which is relevant to the

gravelometer test limitation of claim 1 (p. 1127, left col. second par.; p. 1127, left col. last par.; p. 1127, right col., first par.; p. 1129, right col., last par.). A material that does not pass (score of 1 or greater) a gravelometer test (an automotive industry test) would not be useful for the intended purpose of the materials (transportation applications). With respect to DOI, which is a measure of the reflective qualities of the surface, Hogan also discloses that the high gloss cap layer allows production of articles with glossy surface appearance and eliminates the need for secondary painting operations (p. 1130, left col., first par.).

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 for three layer materials would necessarily be present in the two-layer materials disclosed by Hogan, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries,

e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly disclosed by Howell are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

4.1.1. Secondary References - Novak.

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify Hogan by adding the colored polyolefin layer of Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. (0013), [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

4.1.2. Secondary References - Rohrbacher, Vogel, and Smith.

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Hogan and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at

least 60 , and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI or 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

4.1.3. Motivation to Combine.

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine aesthetic design choice. A POSITA would have been motivated to combine the teachings of Hogan and Novak with Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin

sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

4.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While Hogan does not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

4.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar

multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

4.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Hogan discloses coextruded polyolefin sheets with a 60° gloss of 90, but does not specifically disclose a 20° gloss value (Hogan, Table 3). Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

4.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Hogan explicitly teaches formed products made from the multilayer sheet materials ("High gloss, thermoformed parts, incorporating a co-extruded glossy layer on the TPO substrate, were also demonstrated."; p. 1127, left col., first par.). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

4.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. Hogan explicitly teaches that "High gloss cap layer resins also allow the production of articles with a glossy surface appearance and eliminate the need for secondary painting operations while maintaining the desired physical properties (p. 1130, left col., first par.). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

4.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. Hogan teaches coextrusion and does not mention, utilize or require adhesive in the multilayer structures described therein, nor does Novak. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

4.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed above in Section 4.1, Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 4.1, above.

4.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Hogan, Novak, Rohrbacher, Vogel and Smith references are thermoplastic polyolefin materials (polyolefin materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 1 of the '906 patent would have been obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 4.1, above.

4.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.9 above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Hogan discloses coextruded polyolefin sheets with a 60° gloss of 90, but does not specifically disclose a 20° gloss value (Hogan, Table 3). Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and

Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

4.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.9 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Howell in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

4.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.9 above. Hogan explicitly teaches formed products made from the multilayer sheet materials ("High gloss, thermoformed parts, incorporating a co-extruded glossy layer on the TPO substrate, were also demonstrated."; p. 1127, left col., first par.). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as

evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

4.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since the polyolefin polymers of the Hogan, Novak, Rohrbacher, Vogel and Smith references are thermoplastic polyolefin materials (polyolefin materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 4.8, above.

4.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.13 above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Hogan discloses a polyolefin layer that is 0.05 cm (19.7 mils) in thickness (p. 1129, right col.). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

4.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.13 above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Hogan discloses a multilayer coextruded polyolefin sheet material with a high 60° gloss of 90% (p. 1132, Table 3), but does not explicitly mention a 20° gloss value. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice already known i the art. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

4.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a

minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

4.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.13 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Hogan explicitly discloses this feature (p. 1129, right col., par. 3; 0.43 cm TPO substrate = 169 mil). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

4.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 4.13, above. Hogan explicitly teaches formed products made from the multilayer sheet materials ("High gloss, thermoformed parts, incorporating a co-extruded glossy layer on the TPO substrate, were also demonstrated."; p. 1127, left col., first par.). Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith,

as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

4.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Hogan in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. Hogan discloses the identical or substantially identical method steps as set forth in claim 77 of the '906 patent. In particular, Hogan discloses coextrusion of a clear polyolefin cap layer over a colored polyolefin backing layer, as required by claim 77 (p. 1127, left col., par. 1, p. 1129, right col., par. 3).

Additionally, the claim recites that the formed product has the characteristics of at least one of: (A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and (B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure. Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

Hogan also discloses that the TPO materials are used in the transportation industry and concludes that the materials disclosed in the reference "demonstrate excellent physical properties" including impact resistance, which is relevant to the gravelometer test limitation of

claim 1 (p. 1127, left. col. second par.; p. 1127, left col. last par.; p. 1127, right col., first par.; p. 1129, right col., last par.). The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 4.1.2 and 4.1.3 above and are equally applicable to claim 77.

Hogan discloses a multilayer coextruded polyolefin sheet material with a high 60° gloss of 90% (Table 3), but does not explicitly mention a 20° gloss value. In addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (Ex. 6, par. [0052] and Table 2, p.9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of Howell based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the materials disclosed by Hogan and Novak. Consequently, Hogan in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

- 5. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent**
- **Primary Reference: Schut**
 - **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

The Schut reference is an article authored by Jan H. Schut in the February 1999 issue of the trade magazine *Plastics Technology*, entitled "Sheet Extrusion Competition Ups the Ante on Technological Sophistication".

5.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Schut discloses a multilayered coextruded polyolefin sheet (p. 42, middle col., last par.: "Today, Spartech produces heavy-gauge sheet with up to four layers and three materials") comprising a substrate of colored TPO capped with a clear glossy polypropylene (p. 42, right col., second full par.; p. 43, caption to picture in upper left corner of page) marketed under the tradename "Formalloy HG" by Spartech (*id.*), which is one of the products alleged to infringe claim 1 of the '902 patent. Schut discloses that the materials have a 0.125 to 0.300 inch thick substrate layer and a 0.020 to 0.030 inch thick cap layer of clear glossy polypropylene (p. 42, right col., second full par.). Schut does not teach or mention using an adhesive between the layers of the material, but rather teaches coextrusion. Coextrusion inherently results in the materials being permanently bound at a layer interface, as required by the claims. Claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layers of Schut have a random microstructures. Consequently, the structures and formed products disclosed by Schut are structurally substantially the same as the structures and formed products claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random

microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers).

Although Schut discloses two-layered polyolefin materials and formed products with identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, this reference does not explicitly distinguish between clear and colored polyolefin layers, specify the random microstructure of the backing layer, or disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

Of relevance to the property limitations, Schut mentions low temperature impact strength, which is relevant to the gravelometer test property of the claims. With respect to DOI, which is a measure of the reflective qualities of the surface, Schut discloses that the Spartech Formallooy HG sheet material has a glossy polypropylene cap layer (p. 42, right col., second full par.). Gloss is relevant to the DOI property limitation of the claims. The photograph on page 43 of Schut, referred to above, shows a glossy black chassis cover on the wheeled chair, which indicates that the material is colored.

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 for three layer materials would necessarily be present in the two-layer materials disclosed by Schut, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which

can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly disclosed by Schut are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

5.1.1. Secondary References - Novak.

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify Schut by adding the colored polyolefin layer of Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. (0013], [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

5.1.2. Secondary References - Rohrbacher, Vogel, and Smith.

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is

determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Schut and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at least 60 , and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI or 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also

teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

5.1.3. Motivation to Combine.

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine design choice. A POSITA would have been motivated to combine the teachings of Schut and Novak with Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

5.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and

are permanently bonded at a layer interface. While Schut does not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]).

Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

5.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

5.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.1 above. Claim 11 adds the

limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Schut refers to a glossy polypropylene cap layer (p. 42, middle col., last par. through right column, second par.), but does not explicitly disclose gloss values. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

5.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Schut explicitly teaches producing formed products from the sheet materials (see e.g., caption of picture on p. 43). Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

5.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel

and Smith, as evidenced by SAE J-400, as discussed in Section 5.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. Schut teaches the use of colored TPO rather than paint in the multilayer structures described therein (p. 42, right col.).

Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

5.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. Schut discloses coextruded materials, not adhesive laminated materials (p. 42, middle col. through right col). Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

5.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed

above in Section 5.1, the combination of Schut with Novak, Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 5.1, above.

5.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Schut, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable), claim 1 of the '906 patent would have been obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 5.1, above.

5.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.9, above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures,

Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

5.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.9 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

5.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE

J-400, as discussed in Section 5.9 above. Schut explicitly teaches producing formed products from the sheet materials (see e.g., caption of picture on p. 43). Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

5.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Schut, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 5.8, above.

5.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.13, above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Schut explicitly discloses a multilayer polyolefin sheet material with a polyolefin cap layer that is 20 mils (0.020 inches) in

thickness (p. 42, right col. second full par.). Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

5.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.13, above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice already known in the art. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

5.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1).

Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

5.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 39 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Schut explicitly discloses a multilayer polyolefin sheet material with a polyolefin backing layer that is 95-280 mils in thickness (p. 42, right col. second full par.). Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

5.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 5.13, above. Schut explicitly teaches producing formed products from the sheet materials (see e.g., caption of picture on p. 43). Consequently, Schut in

view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

5.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schut in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. Schut discloses the identical or substantially identical method steps as set forth in claim 77 of the '906 patent, i.e., coextrusion of a colored TPO backing layer with a clear polypropylene cap layer (p. 42, middle col. through right col.).

Additionally, the claim recites that the structure has the characteristics of at least one of:

- (A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and
- (B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure.

Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

Schut teaches that the materials have low temperature impact strength and a glossy surface (*id.*). The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 5.1.1 to 5.1.3, above, and are equally applicable to claim 77. In

addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (Ex. 6, par. [0052] and Table 2, p.9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of Schut based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the materials disclosed by Schut and Novak. Consequently, Schut in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

6. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent

- **Primary Reference: Archived Solvay Webpages**
- **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

The Archived Solvay Webpages are webpages archived by Internet Archive, 300 Funston Avenue, San Francisco, CA 94118 (Web: archive.org) and available for viewing via the "Internet Wayback Machine" (<https://archive.org/web/>). The "Thermoforming Successful Applications" page of the Solvay Engineered Polymers website (www.solvayengineeredpolymers.com), archived on November 13, 2006 is found at <https://web.archive.org/web/20061113223000/http://www.solvayengineeredpolymers.com/products/thermoforming/showthermoforming/0,,42455-2-0,00.htm>. This page includes archived links to several other pages of thermoformed polyolefin applications including

http://web.archive.org/web/20061113225750/http://www.solvayengineeredpolymers.com/static/wma/pdf/7/6/5/8/US_Cargo.pdf ("US_Cargo.pdf") and

https://web.archive.org/web/20061113225807/http://www.solvayengineeredpolymers.com/static/wma/pdf/7/6/3/1/Caterpillar_Monarch.pdf ("Caterpillar_Monarch.pdf").

6.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

The Archived Solvay Webpages that were archived November 13, 2006

(<https://web.archive.org/web/20061113223000/http://www.solvayengineeredpolymers.com/products/thermoforming/showthermoforming/0,,42455-2-0,00.htm>) includes links to two pdf

documents that disclose the use of coextruded Solvay polyolefin products to create glossy polyolefin-based formed products for use in thermoforming vehicle exterior parts

(http://web.archive.org/web/20061113225750/http://www.solvayengineeredpolymers.com/static/wma/pdf/7/6/5/8/US_Cargo.pdf; and https://web.archive.org/web/20061113225807/http://www.solvayengineeredpolymers.com/static/wma/pdf/7/6/3/1/Caterpillar_Monarch.pdf).

These linked documents each disclose problems in the transportation and powered equipment fields relating to painted and polymer-based exterior parts in use at the time. Each of these linked pages also discloses that the solution to the respective problems was a "High-gloss cap layer of INDURE® E1500 engineered polyolefin co-extruded over a SEQUEL® E3000 TPO substrate." (US_Cargo.pdf and Caterpillar_Monarch.pdf; right hand column of each document).

The documents each include photographs (see left hand column of each document) of thermoformed products made from the coextruded structures (*id.*). No adhesive is described in these references, only coextrusion of two polymer layers. Coextrusion inherently results in the materials being permanently bound at a layer interface, as required by the claims. Claim 1 also

requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layers of the Archived Solvay Webpages have a random microstructures. Consequently, the structures and formed products disclosed in the Archived Solvay Webpages are structurally substantially the same as the structures and formed products claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers).

Although the Archived Solvay Webpages disclose two-layered polyolefin materials and formed products with identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, this reference does not explicitly disclose a combination of clear and colored polyolefin layers, explicitly describe the backing layer as having a random microstructure of the backing layer, or disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

Of relevance to the property limitations, the US_Cargo.pdf document linked to the Archived Solvay Webpages indicates that the material exhibited superior low-temperature impact performance, which is relevant to the gravelometer property limitation of the claim. With respect to DOI, which is a measure of the reflective qualities of the surface, the photographs in both linked pages show shiny surfaces.

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 for three layer materials would necessarily be present in the two-layer materials disclosed by the Archived Solvay Webpages, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions described in the Archived Solvay Webpages are the same as those taught by the '902 and '906 patents (coextrusion of a glossy cap polyolefin over a polyolefin base). Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of the Archived Solvay Webpages. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or

gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly disclosed by the Archived Solvay Webpages are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

6.1.1. Secondary References - Novak

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify the Archived Solvay Webpages by adding the colored polyolefin layer of Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. [0013], [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

6.1.2. Secondary References - Rohrbacher, Vogel, and Smith

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are

glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Novak and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at least 60 , and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI or 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in

automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

6.1.3. Motivation to Combine

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine design choice. A POSITA would have been motivated to combine the teachings of the Archived Solvay Webpages and Novak with Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

6.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While the Archived Solvay Webpages do not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

6.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Archived Solvay Webpages in view of Novak and one or more of

Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

6.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. The Archived Solvay Webpages refers to a high-gloss polyolefin cap layer (US_Cargo.pdf and Caterpillar_Monarch.pdf), but do not explicitly disclose gloss values. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

6.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.1

above. Claim 21 adds the limitation that the multilayer structure is a formed product. The Archived Solvay Webpages explicitly teaches producing formed products (US_Cargo.pdf and Caterpillar_Monarch.pdf). Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

6.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. The Archived Solvay Webpages explicitly teach the use of colored TPO to avoid the need for painting (Caterpillar_Monarch.pdf). Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

6.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. The Archived Solvay Webpages disclose coextruded materials, not adhesive laminated materials (US_Cargo.pdf and

Caterpillar_Monarch.pdf). Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

6.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed above in Section 6.1, the combination of the Archived Solvay Webpages with Novak, Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 6.1, above.

6.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Archived Solvay Webpages, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g.,

thermoformable), claim 1 of the '906 patent would have been obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 6.1, above.

6.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.9, above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

6.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.9

above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

6.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.9 above. The Archived Solvay Webpages explicitly teach producing formed products (US_Cargo.pdf and Caterpillar_Monarch.pdf). Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

6.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer.

Since all of the polyolefin polymers of the Archived Solvay Webpages, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 6.8, above.

6.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.13, above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Novak discloses multilayer polyolefin sheet materials in which the cap layer is within the claimed range of thicknesses (Novak, par. [0042]). Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

6.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.13, above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle

and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice already known in the art. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

6.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

6.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 39 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Novak discloses multilayer polyolefin sheet materials in which the backing layer is within the claimed range of thicknesses (Novak, par. [0042]). Consequently, The Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

6.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 6.13, above. The Archived Solvay Webpages explicitly teach producing formed products (US_Cargo.pdf and Caterpillar_Monarch.pdf). Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

6.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. The Archived Solvay Webpages disclose the identical or substantially identical method steps as set

forth in claim 77 of the '906 patent, i.e., coextrusion of a high-gloss polyolefin cap layer with a TPO backing layer (US_Cargo.pdf and Caterpillar_Monarch.pdf).

Additionally, the claim recites that the structure has the characteristics of at least one of:

(A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and
(B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure.

Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

The Archived Solvay Webpages teach that the materials have low temperature impact strength and a glossy surface (US_Cargo.pdf and Caterpillar_Monarch.pdf). The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 6.1.1 to 6.1.3, above, and are equally applicable to claim 77. In addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (par. [0052] and Table 2, p.9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values

of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of the Archived Solvay Webpages based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the materials disclosed by the Archived Solvay Webpages and Novak. Consequently, the Archived Solvay Webpages in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

7. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent

- **Primary Reference: Prior Sales of Extreme HG**
- **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

Extreme HG was on sale and sold prior to the earliest priority date of the '902 and '906 patents.

7.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

The earliest priority date (effective filing date) for the asserted patents is May 5, 2008. ASI has accused PolyOne of direct infringement of the asserted patents based on PolyOne's Extreme HG and Formalloy HG products (ASI's First Amended Complaint, ¶¶23, 44, 51). The accused Extreme HG and Formalloy HG products were on sale and sold prior to the effective filing date of the '902 and '906 patents, and in some cases more than a year prior to the effective filing date of the '902 and '906 patents. Accordingly, the asserted patents are invalid under 35 U.S.C. §102(a) and §102(b). For example, at least as early as August 23, 2006, a TPO sheet product of the Extreme HG product line was sold to a customer in the United States (Shipped from Spartech Plastics to the customer on Prepaid Invoice No. 435044788 dated August 23, 2006). Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG

infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. *Vanmoor v. Wal-Mart Stores, Inc.*, 201 F.3d 1363, 1366 (Fed. Cir. 2000).

The Extreme HG products sold prior to the priority date of the '902 and '906 patents ("Sold Extreme HG Products") comprise a colored polyolefin cap layer coextruded over a colored thermoplastic polyolefin backing layer, and had a high gloss finish. No adhesive was used between the layers in the Sold Extreme HG Products. Coextrusion of one polyolefin with another polyolefin, as in the Sold Extreme HG Products inherently results in the materials being permanently bound at a layer interface, as required by the asserted claims. Claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layer of the Sold Extreme HG Products has a random microstructures. Consequently, the Sold Extreme HG Products are structurally substantially the same as the structures claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers). The Sold Extreme HG Products were sold to customers, who, upon information and belief, thermoformed the materials into formed products.

Although the Sold Extreme HG Products and the thermoformed products made from them are two-layered polyolefin materials with identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, these sales do not explicitly

disclose a combination of clear and colored polyolefin layers, explicitly describe the backing layer as having a random microstructure of the backing layer, or explicitly disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 for three layer materials would necessarily be present in the Sold Extreme HG Products, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used to make the Sold Extreme HG Products are the same as those taught by the '902 and '906 patents (coextrusion of a glossy cap polyolefin over a polyolefin base). Consequently, any properties of the multilayer structures of specified in the claims of the '902 and '906 patents necessarily would be present in the Sold Extreme HG Products. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold

up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly present in the Sold Extreme HG Products are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

7.1.1. Secondary References - Novak

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify the Sold Extreme HG Products by adding a clear layer as taught by Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. [0013], [0015] and [0017], in which the layers are coextruded (par. [0041], [0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

7.1.2. Secondary References - Rohrbacher, Vogel, and Smith

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Novak and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at

least 60 , and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI or 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

7.1.3. Motivation to Combine

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products, represent nothing more than optimization through routine experimentation or a routine design choice. A POSITA would have been motivated combine the Sold Extreme HG Products with Novak, Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin sheet

materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

7.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While the Sold Extreme HG Products do not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

7.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher

specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious.

7.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

7.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Novak discloses making formed products from similar sheet materials (Novak par. [0007] and [0009]), as does Vogel (par. [0132]). Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

7.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. The Sold Extreme HG Products do not include paint. Additionally, Smith teaches the desirability of using pigmentation in the polyolefin materials to eliminate the need for painting (see e.g., Abstract and col. 4, l. 43-46). Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

7.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or

more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. The Sold Extreme HG Products are coextruded materials, not adhesive laminated materials, and do not include an adhesive between the layers. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

7.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed above in Section 8.1, the combination of the Sold Extreme HG Products with Novak, Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 7.1, above.

7.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely

requires that the backing layer be a thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Sold Extreme HG Products, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable), claim 1 of the '906 patent would have been obvious over the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 7.1, above.

7.10. Claim 4 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.9, above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

7.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.9 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

7.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.9 above. Novak discloses making formed products from similar sheet materials (Novak par. [0007] and [0009]), as does Vogel (par. [0132]). Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

7.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Sold Extreme HG Products, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 7.8, above.

7.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.13, above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Novak discloses multilayer polyolefin sheet materials in which the cap layer is within the claimed range of thicknesses (Novak, par. [0042]). Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious.

7.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.13, above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice already known in the art. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

7.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Sold Extreme HG Products in view of Novak and one or more of

Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

7.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Novak discloses multilayer polyolefin sheet materials in which the backing layer is within the claimed range of thicknesses (Novak, par. [0042]). Consequently, Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

7.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 7.13, above. Novak discloses making formed products from similar sheet materials (Novak par. [0007] and [0009]), as does Vogel (par. [0132]). Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

7.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Extreme HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. The Sold Extreme HG Products are made by the identical or substantially identical method steps as set forth in claim 77 of the '906 patent, i.e., coextrusion of a high-gloss polyolefin cap layer with a TPO backing layer.

Additionally, the claim recites that the structure has the characteristics of at least one of:

- (A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and
- (B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure.

Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 8.1.1 to 8.1.3, above, and are equally applicable to claim 77. In addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer (par. [0052] and Table 2, p. 9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a

polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of the Sold Extreme HG Products based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the Sold Extreme HG Products and Novak. Consequently, the Sold Extreme HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious

8. Claims 1, 5, 10, 11, 21, 23, 25, and 36 of the '902 patent; and claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of the '906 patent

- **Primary Reference: Prior Sales of Formalloy HG**
- **Secondary References: Novak, Rohrbacher, Vogel, Smith, and SAE J-400**

Formalloy HG was on sale and sold prior to the earliest priority date of the '902 and '906 patents.

8.1. Claim 1 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

The earliest priority date (effective filing date) for the asserted patents is May 5, 2008. ASI has accused PolyOne of direct infringement of the asserted patents based on PolyOne's Extreme HG and Formalloy HG products (ASI's First Amended Complaint, ¶¶23, 44, 51). The accused Extreme HG and Formalloy HG products were on sale and sold prior to the effective filing date of the '902 and '906 patents, and in some cases more than a year prior to the effective filing date of the '902 and '906 patents. Accordingly, the asserted patents are invalid under 35 U.S.C. §102(a) and §102(b). For example, at least as early as December 2, 2006, a TPO sheet

product of the Formalloy HG product line was sold to a customer in the United States (Product shipped from Spartech Plastics to the customer on Prepaid Invoice No. 320118 dated December 2, 2006 and Invoice No. 321773 dated January 6, 2007). Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. *Vanmoor v. Wal-Mart Stores, Inc.*, 201 F.3d 1363, 1366 (Fed. Cir. 2000).

The Formalloy HG products sold prior to the priority date of the '902 and '906 patents ("Sold Formalloy HG Products") comprise a colored polyolefin cap layer coextruded over a colored thermoplastic polyolefin backing layer, and had a high gloss finish. No adhesive was used between the layers in the Sold Formalloy HG Products. Coextrusion of one polyolefin with another polyolefin, as in the Sold Formalloy HG Products inherently results in the materials being permanently bound at a layer interface, as required by the asserted claims. Claim 1 also requires that the backing layer has a "random microstructure." The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layer of the Sold Formalloy HG Products has a random microstructures. Consequently, the Sold Formalloy HG Products are structurally substantially the same as the structures claimed in the '902 and '906 patents (i.e., a polyolefin cap layer coextruded over a polyolefin backing layer with a random microstructure, which are permanently bound together at a layer interface without any adhesive layer between the polyolefin layers). The Sold Formalloy HG Products were sold to customers, who, upon information and belief, thermoformed the materials into formed products.

Although the Sold Formalloy HG Products and the thermoformed products made from them are two-layered polyolefin materials with identical or substantially identical chemical compositions as two-layered materials described in the '902 patent, these sales do not explicitly disclose a combination of clear and colored polyolefin layers, explicitly describe the backing layer as having a random microstructure of the backing layer, or explicitly disclose the performance characteristic limitations of claim 1, i.e., that the structure has a DOI of 70 or greater, and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees.

The '902 patent teaches that two-layered sheet materials comprising a polyolefin layer coextruded with a TPO backing layer provide the same performance properties for DOI and gravelometer testing as the three-layered materials (compare claim 1 (three layers) with claim 36 (two layers)). Consequently, the DOI and gravelometer test result properties specified in claim 1 for three layer materials would necessarily be present in the Sold Formalloy HG Products, which are identical or substantially identical to the two-layered materials of the '902 patent. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used to make the material. In the present case, the raw materials and processing conditions used to make the Sold Formalloy HG Products are the same as those taught by the '902 and '906 patents (coextrusion of a glossy cap polyolefin over a polyolefin base). Consequently, any properties of the multilayer structures of specified in the claims of the '902 and '906 patents necessarily would be present in the Sold Formalloy HG Products. In the alternative, should the Court find that the property limitations are not inherent, then DOI and gravelometer test limitations are nothing more than routine aesthetic design choices already known or suggested in the prior art.

The DOI and chip resistance (gravelometer) limitations relate to aesthetic qualities of the multilayer structures and formed products, which are dictated by the desire in certain industries, e.g., the automotive industry, for glossy, highly reflective (i.e., high DOI) surfaces that can hold up to the wear and tear experienced in daily use (e.g., chip resistance) as exterior coverings or body parts part in the transportation industry (the so-called "Class A surface"). Not all exterior body parts on automobiles and the like require a glossy, high DOI surface (some parts may have a mat finish if the designer desires). Similarly, some uses may not require the degree of chip resistance that other uses may require. Thus, the selection of a particular DOI value or gravelometer test result is a routine aesthetic design choice for a POSITA wishing to supply goods to that particular niche of the transportation industry, as the teachings of the prior art amply demonstrate.

The limitations of claim 1 not explicitly present in the Sold Formally HG Products are taught by one or more of the secondary references (i.e., Novak, Rohrbacher, Vogel, and Smith), as evidenced by SAE J-400.

8.1.1. Secondary References - Novak

Novak discloses including a colored polyolefin layer (par. [0043] and [0052]; Table 2, examples 12-15, which include "Black" color concentrate). A POSITA would have been motivated to modify the Sold Formally HG Products by adding a clear layer as taught by Novak due to the similar nature of the disclosed multilayer sheet materials (Novak discloses a substantially similar multilayer sheet material (par. [0007], [0042] - [0044]) comprising a clear polyolefin layer (par. [0043] and [0052]), a colored polyolefin layer (par. [0043] and [0052]) and a polyolefin backing layer (par. [0031], [0043], [0052], [0054], and [0057] with a random microstructure (par. [0013], [0015] and [0017], in which the layers are coextruded (par. [0041],

[0043], [0049] and [0062]), which necessarily results in the layers being permanently bonded at a layer interface); and the same field of use (e.g., automotive and other vehicle body parts; Novak par. [0007] and [0009]).

8.1.2. Secondary References - Rohrbacher, Vogel, and Smith

Rohrbacher discloses thermoformable multilayer polymeric sheet materials for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with an adhesive layer between a glossy, clear thermoplastic finish layer over a pigmented thermoplastic layer (p. 3, ll. 25-31). Rohrbacher teaches that automotive quality finishes are glossy, with good weatherability, scratch and mar resistance, good gloss retention on weathering, high distinctness of image (DOI), gasoline resistance, and abrasion and mar resistance (p. 4, l. 28 through p. 5, l. 6). Rohrbacher specifically teaches a gloss of at least 60 at 20 degrees and at least 75 at 60 degrees, as well as a DOI of at least 60 (p. 7, l. 35 through p. 8, l. 1), with specific measured DOI values of 85 in Example 1 (p. 22, l. 21), Example 2 (p. 23, l. 15), and Example 5 (p. 26, l. 27). Rohrbacher also states that in order to be "useful as an automotive or truck finish" a laminate must have acceptable chip resistance (p. 7, l. 30 – p. 8, l. 3). Chip resistance is determined by the gravelometer test described in SAE J-400 at -23 °C and achieves a minimum rating of 8 according to the F. B. Gravelometer Rating Chart (see p. 9, l. 18-23). SAE J-400 is comparable to GM 9508P inasmuch as both test a sample at low temperatures (SAE J-400 was tested at -23 °C; GM 9508P tests at a temperature between -30 °C and -18 °C) by projecting a pressurized gravel spray at a sample, wiping off the sample, and removing remaining gravel fines from the sample with a piece of tape. (See SAE J-400, p. 2). In both tests, the sample is visually compared to photographic standards to determine a chipping rating. (*Id.*). Rohrbacher discloses a SAE J-400 minimum rating of 8.

Vogel, like Novak and Rohrbacher, teaches a coextruded thermoformable material that is subsequently molded into vehicle parts (par. [0132]). Vogel also teaches that in the automotive industry, satisfactory finishes on a smooth or "Class A" surface typically will have a DOI of at least 60, and preferably 80 or greater and frequently as high as 90 to 95 (par. [0064], [0071], [0132]), demonstrating that selection of a DOI of 70 or greater would have been a routine choice for a POSITA designing thermoformable parts in the automotive and related fields.

Smith also discloses multilayer polymeric sheet materials comprising a clear polymer layer laminated together with a pigmented plastic substrate without an adhesive for use in automotive exterior surfaces of similar structure to the structure of the present claims, although with the layers being calendared together instead of co-extruded, and with a non-polyolefin top layer and thermoforming an automotive part from the sheet materials (col. 1, l. 12-18; col. 4, l. 47-53; col. 5, l. 24-44). Smith teaches that automotive quality finishes should be durable and glossy (col. 4, l. 35-42), should have a DOI of at least 60 and a gravelometer chip resistance of at least 8 according to the SAE J-400 test at -10 °F (about -23 °C) (col. 15, l. 38-43). Smith also teaches the desirability of a gloss of about 60-65 at 20 degrees and about 75-80 at 60 degrees (col. 15, l. 1-3).

8.1.3. Motivation to Combine

Since DOI and gravelometer testing were well known in the art at the time of the alleged invention, one of ordinary skill in the art would consider the specific selection of the performance characteristic requirements of DOI (70 or greater) and gravelometer impact resistance (pass) in claim 1 as a conventional design choice and old in the art for automotive quality finishes, as taught by Rohrbacher and Smith. Thus, the choice of a specific DOI or gravelometer result, which ultimately relate to aesthetic features of the claimed products,

represent nothing more than optimization through routine experimentation or a routine design choice. A POSITA would have been motivated to modify Sold Formalloy HG Products by the teachings of Novak with Rohrbacher, Vogel and/or Smith due to the similar nature of the layered polyolefin sheet materials of the references and the common fields of use (e.g., glossy automotive and vehicle exterior parts) and the common teachings regarding the importance of glossy surface characteristics in the references. As a consequence, claim 1 would have been obvious over the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

8.2. Claim 5 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 5 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 5 adds the limitation that the clear layer, the color layer and the polyolefin backing layer are coextruded and are permanently bonded at a layer interface. While the Sold Formalloy HG Products do not provide specific examples of three layers of polyolefin coextruded together, Novak teaches that polyolefin sheet materials can have two or more layers (par. [0042]), and that the layers can be coextruded (par. [0038]). Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 5, and thus renders claim 5 obvious.

8.3. Claim 10 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 10 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 10 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 10, and thus renders claim 10 obvious

8.4. Claim 11 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 11 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 11 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 11 amounts to nothing more than a routine design choice already known in the art. Consequently, the Sold Formalloy HG Products in view of Novak and one or

more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 11, and thus renders claim 11 obvious.

8.5. Claim 21 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 21 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 21 adds the limitation that the multilayer structure is a formed product. Novak discloses making formed products from similar sheet materials (Novak par. [0007] and [0009]), as does Vogel (par. [0132]). Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 21, and thus renders claim 21 obvious.

8.6. Claim 23 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 23 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 23 adds the limitation that the multilayer structure is exclusive of paint. The Sold Formalloy HG Products do not include paint. Additionally, Smith teaches the desirability of using pigmentation in the polyolefin materials to eliminate the need for painting (see e.g., Abstract and col. 4, l. 43-46). Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 23, and thus renders claim 23 obvious.

8.7. Claim 25 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 25 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.1 above. Claim 25 adds the limitation that the multilayer structure is free of any adhesive between the clear and color layers and the color and backing layers. The Sold Formalloy HG Products are coextruded materials, not adhesive laminated materials, and do not include an adhesive between the layers. Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 25, and thus renders claim 25 obvious.

8.8. Claim 36 of the '902 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 36 of the '902 patent differs from claim 1 only in that claim 36 requires that the backing layer be colored and does not require the presence of a third polyolefin layer or a layer that specifically is "clear". Instead, the two layers of claim 36 are described as (1) a polyolefin layer and (2) a colored polyolefin backing layer having a random microstructure. As discussed above in Section 8.1, the combination of the Sold Formalloy HG Products with Novak, Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 1. Thus, claim 36 would have been obvious over the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, for the same reasons as claim 1, discussed in Section 8.1, above.

8.9. Claim 1 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 1 of the '906 patent differs from claim 1 of the '902 patent only in the description of the backing layer. Claim 1 of the '902 patent requires that the backing layer be a polyolefin backing layer having a random microstructure; whereas claim 1 of the '906 patent merely requires that the backing layer be a thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Sold Formalloy HG Products, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable), claim 1 of the '906 patent would have been obvious over the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 1 of the '902 patent discussed in Section 8.1, above.

8.10. Claim 5 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 4 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.9, above. Claim 4 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 4 amount to nothing more than a routine design choice.

Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 4, and thus renders claim 4 obvious.

8.11. Claim 8 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 8 depends on claim 1. The incorporated limitations from claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.9 above. Claim 8 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l. 35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 8, and thus renders claim 8 obvious.

8.12. Claim 20 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 20 is an independent claim directed to a formed product that comprises the same limitations as claim 1. The limitations of claim 1 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.9 above. Novak discloses making formed products from similar sheet materials (Novak par. [0007] and [0009]), as does Vogel (par. [0132]). Consequently, the Sold Formalloy HG Products in view of Novak and one or

more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 20, and thus renders claim 20 obvious.

8.13. Claim 39 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 39 of the '906 patent differs from claim 36 of the '902 patent only in the description of the backing layer. Claim 36 of the '902 patent requires that the backing layer be a colored polyolefin backing layer having a random microstructure; whereas claim 39 of the '906 patent merely requires that the backing layer be a colored thermoplastic polyolefin backing layer. Since all of the polyolefin polymers of the Sold Formalloy HG Products, Novak, Rohrbacher, Vogel and Smith references are thermoplastic materials (materials that are deformable by heat, e.g., thermoformable) this feature is taught by the references. Consequently, claim 39 of the '906 patent would have been obvious over the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400, for precisely the same reasons as claim 36 of the '902 patent discussed in Section 8.8, above.

8.14. Claim 40 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 40 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.13, above. Claim 40 adds the limitation that the polyolefin layer is 2.5 to 20 mils in thickness. Novak discloses multilayer polyolefin sheet materials in which the cap layer is within the claimed range of thicknesses (Novak, par. [0042]). Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by

SAE J-400, teaches or suggests all of the limitations of claim 40, and thus renders claim 40 obvious

8.15. Claim 42 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 42 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.13, above. Claim 42 adds the limitation that the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle. Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78. Rohrbacher (p. 7, l. 35 through p. 8, l. 1), and Smith (col. 15, lines 1-3) describe similar polymeric sheet materials with the required gloss values. Thus, the selection of the specific gloss values of claim 42 amount to nothing more than a routine design choice already known in the art. Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 42, and thus renders claim 42 obvious.

8.16. Claim 46 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 46 depends on claim 39. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.13 above. Claim 46 adds the limitation that the structure has a DOI of 85 or greater. Rohrbacher specifically teaches similar multilayer materials with specific measured DOI values of 85 (p. 7, l.

35 through p. 8, l. 1). Vogel also teaches this limitation (par. [0064], [0071], [0132]). Thus, the selection of a minimum DOI of 85 is nothing more than a routine design choice already known in the art. Consequently, the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 46, and thus renders claim 46 obvious.

8.17. Claim 53 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 53 depends on claim 40. The incorporated limitations from claim 39 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.14 above. Claim 53 adds the limitation that the backing layer is 3 to 500 mils in thickness. Novak discloses multilayer polyolefin sheet materials in which the backing layer is within the claimed range of thicknesses (Novak, par. [0042]). Consequently, Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 53, and thus renders claim 53 obvious.

8.18. Claim 55 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 55 is an independent claim directed to a formed product that comprises the same limitations as claim 39. The limitations of claim 39 are taught or suggested by the combination of the Sold Formalloy HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, as discussed in Section 8.13, above. Novak discloses making formed products from similar sheet materials (Novak par. [0007] and [0009]), as does Vogel (par. [0132]). Consequently, the Sold Formalloy HG Products in view of Novak and one or

more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 55, and thus renders claim 55 obvious.

8.19. Claim 77 of the '906 Patent is invalid under pre-AIA 35 U.S.C. § 103(a) as being obvious over Prior Sales of Formalloy HG in view of Novak and one or more of Rohrbacher, Vogel, and Smith, as evidenced by SAE J-400.

Claim 77 is a method claim directed to a method of making a multilayer structure comprising the layer structures encompassed by claims 1 and 39 of the '906 patent. The Sold Formalloy HG Products are made by the identical or substantially identical method steps as set forth in claim 77 of the '906 patent, i.e., coextrusion of a high-gloss polyolefin cap layer with a TPO backing layer.

Additionally, the claim recites that the structure has the characteristics of at least one of:

- (A) a DOI of 70 or greater, and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt. load, at a -30° C temperature and at an angle of 30 degrees, and
- (B) the polyolefin of a top layer selected from the clear and the color layer has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle are properties resulting from the claimed structure.

Selections A and B are stated in a Markush listing, thus meeting one such characteristic is sufficient to meet the claim requirement. The (A) limitation is the same product characteristic referred to in claims 39 and 55, and represent performance characteristics that result from the structure formed by the method.

The teachings of the secondary references of Novak, Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, regarding the DOI and the gravelometer property limitations are addressed in Sections 8.1.1 to 8.1.3, above, and are equally applicable to claim 77. In addition, Novak discloses that INSPIRE D404.01 can be used as the polyolefin for the polyolefin layer

(par. [0052] and Table 2, p. 9, Examples 10-16, PP-2). The '906 patent indicates that INSPIRE 404 has a Rockwell hardness of 105R (col. 5, ll. 31-35). Thus, Novak inherently discloses a polyolefin with a Rockwell hardness of greater than 80R. Novak also teaches materials made with a cap layer of Inspire 404.01 having the required gloss values (Table 2 of Novak discloses working examples of similar multilayer structures, Examples 10-16, which had 60° gloss values of 86 to 88, 20° gloss values of 69-78). One of ordinary skill in the art would have been motivated to use a polyolefin of Novak with a Rockwell hardness of 80R or greater and the requisite gloss values for the polyolefin layer of the Sold Formalloys HG Products based on the teachings of Novak and the similarities and common purpose (vehicle exterior parts) of the Sold Formalloys HG Products and Novak. Consequently, the Sold Formalloys HG Products in view of Novak and one or more of Rohrbacher, Vogel and Smith, as evidenced by SAE J-400, teaches or suggests all of the limitations of claim 77, and thus renders claim 77 obvious.

III. LPR 3.5(c) Claim Charts Identifying the Location of Claimed Limitations In the Prior Art

In accordance with LPR 3.5(c), Defendants provide claim charts I-XVI, which are attached hereto, below, comparing the asserted claims of the '902 patent and the '906 patent with the prior art references identified above. At this time, Defendants believe that no term in any of the asserted claims is governed by 35 U.S.C. §112 ¶6.

IV. LPR 3.5(d) – Grounds for Invalidity Based on 35 U.S.C. § 112

**A. The Claims of the '902 Patent Are Invalid
Under 35 U.S.C. §112 ¶1 For Failing the Written
Description Requirement Due to the
"Random Microstructure" Limitation**

Defendants assert that the claims of the '902 patent are invalid for failing to comply with 35 U.S.C. §112 ¶1 for failing to provide a written description of the claimed invention having sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. Particularly, each of the asserted claims of the '902 patent includes a limitation that the backing layer has a "random microstructure". The written description fails to provide an adequate disclosure of what constitutes a "random microstructure". Consequently, the written description requirement is not met by the claims of the '902 and '906 patents, since the specification does not describe the claimed invention in sufficient detail such that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.

**B. The Claims of the '902 Patent Are Invalid
Under 35 U.S.C. §112 ¶ 1 For Failing the
Enablement Requirement Due to the
"Random Microstructure" Limitation**

Defendants assert that the claims of the '902 patent are invalid for failing to comply with 35 U.S.C. §112 ¶1 for failing to provide a description of the claimed invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. Particularly, each of the asserted claims of the '902 patent includes a limitation that the backing layer has a "random microstructure". The '902 patent fails to provide an adequate disclosure of what constitutes a "random microstructure". Thus, the

specification of the '902 patent does not provide sufficient disclosure to enable a person of ordinary skill in the art to make and use a multilayer structure or formed product that has a backing layer with a "random microstructure" as recited in the claims.

C. The Claims of the '902 Patent Are Invalid Under 35 U.S.C. §112 ¶2 For Being Indefinite Due to the "Random Microstructure" Limitation

Defendants assert that the claims of the '902 patent are invalid for failing to comply with 35 U.S.C. §112 ¶2 for failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Particularly, each of the asserted claims of the '902 patent includes a limitation that the backing layer has a "random microstructure". The specification and prosecution history fail to inform what constitutes a "random microstructure". Thus, the claims, when viewed in light of the specification and prosecution history, do not inform a person of ordinary skill in the art about the scope of the claimed invention with reasonable certainty.

D. The Claims of the '902, and '906 Patents Are Invalid Under 35 U.S.C. §112 ¶1 For Failing the Written Description Requirement Due to the "Gravelometer" Limitation

Defendants assert that the claims of the '902 and '906 patents are invalid for failing to comply with 35 U.S.C. §112 ¶1 for failing to provide a written description of the claimed invention having sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. Particularly, each of the asserted claims of the '902 and '906 patents includes a limitation that the structure or formed product "passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees." The specified test is a modification of the GM9508P standard test used to assess chipping of painted surfaces by hitting the surface with 1 pint (pt) of gravel

using a machine called a gravelometer. The claimed structures and formed products do not have painted surfaces. The written description fails to provide any disclosure of the details of the modified gravelometer test, how the modified test is to be performed using 10 pts of gravel, what constitutes "passes", how to assign numerical test results for the claimed, unpainted, multilayer polyolefin structures based on the test's comparison photographs of chipped painted surfaces, and fails to described the structural or processing factors required to achieve the passing test result for the claimed coextruded multilayer structures and formed products. There also is no description of how the test is modified from 1 pt of gravel to 10 pts. Consequently, the written description requirement is not met by the claims of the '902 and '906 patents, since the specification does not describe the claimed invention in sufficient detail such that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.

E. The Claims of the '902, and '906 Patents Are Invalid Under 35 U.S.C. §112 ¶1 For Failing the Enablement Requirement Due To the "Gravelometer" Limitation

Defendants assert that the claims of the '902 and '906 patents are invalid for failing to comply with 35 U.S.C. §112 ¶1 for failing to provide a description of the claimed invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. Particularly, each of the asserted claims of the '902 and '906 patents includes a limitation that the structure or formed product "passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees." The specified test is a modification of the GM9508P standard test used to assess chipping of painted surfaces by hitting the surface with 1 pint (pt) of gravel using a machine called a gravelometer. The claimed structures and formed products do not have painted

surfaces. The '902 and '906 patents fail to provide any disclosure of the details of the modified gravelometer test, how the modified test is to be performed using 10 pts of gravel, what constitutes "passes", how to assign numerical test results for the claimed, unpainted, multilayer polyolefin structures based on the test's comparison photographs of chipped painted surfaces, and fails to described the structural or processing factors required to achieve the passing test result for the claimed coextruded multilayer structures and formed products. There also is no description of how the test is modified from 1 pt of gravel to 10 pts. Thus, the specifications of the '902 and '906 patents do not provide sufficient disclosure to enable a person of ordinary skill in the art to make and use a multilayer structure or formed product that "passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees" as recited in the claims.

F. The Claims of the '902, and '906 Patents Are Invalid Under 35 U.S.C. §112 ¶2 For Being Indefinite Due to the "Gravelometer" Limitation

Defendants assert that the claims of the '902 and '906 patents are invalid for failing to comply with 35 U.S.C. §112 ¶2 for failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Particularly, each of the asserted claims of the '902 and '906 patents includes a limitation that the structure or formed product "passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees." The specified test is a modification of the GM9508P standard test used to assess chipping of painted surfaces by hitting the surface with 1 pint (pt) of gravel using a machine called a gravelometer. The claimed structures and formed products do not have painted surfaces. The written description fails to provide any disclosure of the details of the modified gravelometer test, how the modified test is to be performed using 10

pts of gravel, what constitutes "passes", how to assign numerical test results for the claimed, unpainted, multilayer polyolefin structures based on the test's comparison photographs of chipped painted surfaces, and fails to described the structural or processing factors required to achieve the passing test result for the claimed coextruded multilayer structures and formed products. There also is no description of how the test is modified from 1 pt of gravel to 10 pts. The specification and prosecution history fail to inform what constitutes "passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees". Thus, the claims, when viewed in light of the specification and prosecution history, do not inform a person of ordinary skill in the art about the scope of the claimed invention with reasonable certainty.

G. The Claims of the '902, and '906 Patents Are Invalid Under 35 U.S.C. §112 ¶1 For Failing the Written Description Requirement Due to the "DOI" Limitation

Defendants assert that the claims of the '902 and '906 patents are invalid for failing to comply with 35 U.S.C. §112 ¶1 for failing to provide a written description of the claimed invention having sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. Particularly, each of the asserted claims of the '902 and '906 patents includes a limitation that the structure or formed product "has a DOI of 70 or greater." The written description fails to provide any disclosure of what structural or processing factors are required to achieve the specified numerical DOI value for the claimed structures and formed products. Consequently, the written description requirement is not met by the claims of the '902 and '906 patents, since the specification does not describe the claimed

invention in sufficient detail such that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.

H. The Claims of the '902, and '906 Patents Are Invalid Under 35 U.S.C. §112 ¶ 1 For Failing the Enablement Requirement Due to the "DOI" Limitation

Defendants assert that the claims of the '902 and '906 patents are invalid for failing to comply with 35 U.S.C. §112 ¶1 for failing to provide a description of the claimed invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. Particularly, each of the asserted claims of the '902 and '906 patents includes a limitation that the structure or formed product "has a DOI of 70 or greater." The written description fails to provide any disclosure of what structural or processing factors are required to achieve the specified numerical DOI value for the claimed structures and formed products. Thus, the specifications of the '902 and '906 patents do not provide sufficient disclosure to enable a person of ordinary skill in the art to make and use a multilayer structure or formed product that "has a DOI of 70 or greater" as recited in the claims.

I. The Claims of the '902, and '906 Patents Are Invalid Under 35 U.S.C. §112 ¶2 For Being Indefinite Due to the "DOI" Limitation

Defendants assert that the claims of the '902 and '906 patents are invalid for failing to comply with 35 U.S.C. §112 ¶2 for failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Particularly, each of the asserted claims of the '902 and '906 patents includes a limitation that the structure or formed product "has a DOI of 70 or greater." There are multiple methods for measuring a DOI values, and not all methods produce the same numerical results. The claims fail to specify which method is to be

used to measure the DOI. ASTM Standard D 5767 for Instrumental Measurement of Distinctness of Image of Coating Surfaces specifies three alternative methods (A, B, and C) for measuring DOI of coating surfaces, and specifically states that the scale values obtained from the alternative methods cited do not agree (see ASTM D 5767 - 95 (Reapproved 2004), paragraph 1.1). Thus, the phrase "has a DOI of 70 or greater" is indefinite, because there are multiple methods for measuring distinctness of image (DOI), which can afford different results, and the claims of US 8,007,902 do not specify what method should be used to measure the DOI value.

Chart I**Claim 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(b) by Howell**

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
Claim 36	
36. [A] A multilayer structure comprising:	Howell: col. 2, l. 50-53; col. 3, l. 4-11.
[36.B] a polyolefin layer;	Howell: col. 2, l. 50-52; col. 3, l. 4-6; col. 3, l. 26-33; Table 2; col. 4, l. 35-45.
[36.C] a colored polyolefin backing layer	Howell: Table 2, col. 3, l. 56 through col. 4, l. 21; col. 4, l. 35-45
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>The term "random microstructure" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Howell discloses backing layers comprising random copolymers (CPP), thus the backing layers of Howell have random microstructures.</p> <p>Howell: Table 2, col. 3, l. 56 through col. 4, l. 21</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
<p>[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;</p>	<p>Howell: FIG. 1; see also col. 3, l. 4-8.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
<p>[36.F] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive layer or use is disclosed in the Howell reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[36.G] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>
<p>[36.H] the structure passes a gravelometer</p>	<p>The requirement that the structure (or</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
<p>impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>

Chart II

Claims 39, 40, 42, 46, 53, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(b) by Howell

Claim of U.S. Pat. No. 8,182,906	Citations to Howell
[*bracketed numbers and letters added for reference purposes]	
Claim 39	
39[A]. A multilayer structure comprising	Howell: col. 2, l. 50-53; col. 3, l. 4-11.
[39.B] a polyolefin layer;	Howell: col. 2, l. 50-52; col. 3, l. 4-6; col. 3, l. 26-33; Table 2; col. 3, l. 56 through col. 4, l. 21; col. 4, l. 35-45.
[39.C] a thermoplastic polyolefin backing layer;	Howell: col. 2, l. 52-53; col. 3, l. 6-11; col. 3, l. 34-40; Table 2, col. 3, l. 56 through col. 4, l. 21
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Howell: col. 2, l. 51; col. 3, l. 4-11; Table 2; FIG. 1. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[39.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Howell reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[39.F] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
	<p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>
<p>Claim 40. The multilayer structure of claim 39, wherein the polyolefin layer is 2.5 to 20 mils in thickness.</p>	<p>Howell: col. 4, l. 26-29</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
Claim 42. The multilayer structure of claim 39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	Howell: Table 2, col. 3, l. 56 through col. 4, l. 21.
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>
Claim 53. The multilayer structure of claim 40, wherein the backing layer is 3 to 500 mils in thickness.	Howell: col. 4, l. 26-29.
Claim 55	
55 [A]. A formed product comprising:	Howell: col. 2, l. 29-30; col. 5, l. 60-67.
[55.B] a polyolefin layer;	Howell: col. 2, l. 50-52; col. 3, l. 4-6; col. 3, l. 26-33; Table 2; col. 3, l. 56 through col. 4, l. 21; col.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
	4, l. 35-45.
[55.C] a thermoplastic polyolefin backing layer;	Howell: col. 2, l. 52-53; col. 3, l. 6-11; col. 3, l. 34-40; Table 2, col. 3, l. 56 through col. 4, l. 21
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Howell: col. 2, l. 51; col. 3, l. 4-11; Table 2; FIG. 1. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[55.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Howell reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[55.F] the formed product has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
<p>[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>
Claim 77	
<p>77[A]. A method of making a multilayer structure comprising:</p>	<p>Howell: col. 2, l. 51; col. 3, l. 4-11; Table 2; FIG. 1.</p>
<p>[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;</p>	<p>Howell: col. 2, l. 51; col. 3, l. 4-11; FIG. 1. Table 2, col. 3, l. 56 through col. 4, l. 21; col. 4, l. 35-45.</p>
<p>[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;</p>	<p>Howell: col. 2, l. 51; col. 3, l. 4-11; Table 2; FIG. 1.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Howell
	<p>polymers.</p> <p>No adhesive layer or use is disclosed in the Howell reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[77.D] wherein the multilayer structure has the characteristics of at least one of:</p>	<p>The (A) and (B) properties are listed as alternatives, thus only one must be met.</p>
<p>[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and</p>	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Howell (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Howell.</p>
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

Chart III

Claim 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(b) by Sherman-1999

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
Claim 36	
36. [A] A multilayer structure comprising:	Sherman-1999: p. 46, right col. first par.; p. 46, middle col. par. 2; p. 47, middle col., par. 3.
[36.B] a polyolefin layer;	Sherman-1999: p. 47, first col., par. 2.
[36.C] a colored polyolefin backing layer	Sherman-1999: p. 46, left col., par. 1; p. 46, middle col., par. 3; p. 46, right col., last par.; p. 47, left col., par. 1; p. 47, entire middle col. and right col.
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>The term "random microstructure" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term.</p> <p>Thus, the polyolefin backing layer of Sherman-1999 (p. 46, left col., par. 1; p. 46, middle col., par. 3; p. 46, right col., last par.; p. 47, left col., par. 1; p. 47, entire middle col. and right col.) has a random</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
	microstructure.
[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Sherman-1999: p. 46, middle col. par. 2; p. 47, middle col., par. 3 Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[36.F] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Sherman-1999 reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[36.G] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
<p>[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>

Chart IV

Claims 39, 40, 42, 46, 53, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(b) by Sherman-1999

Claim of U.S. Pat. No. 8,182,906	Citations to Sherman-1999
[*bracketed numbers and letters added for reference purposes]	
Claim 39	
39[A]. A multilayer structure comprising	Sherman-1999: p. 46, right col. first par.; p. 46, middle col. par. 2; p. 47, middle col., par. 3.
[39.B] a polyolefin layer;	Sherman-1999: p. 47, first col., par. 2.].
[39.C] a thermoplastic polyolefin backing layer;	Sherman-1999: p. 46, left col., par. 1; p. 46, middle col., par. 3; p. 46, right col., last par.; p. 47, left col., par. 1; p. 47, entire middle col. and right col.
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Sherman-1999: p. 46, middle col. par. 2; p. 47, middle col., par. 3 Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[39.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Sherman-1999 reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[39.F] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
	<p>described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>
<p>Claim 40. The multilayer structure of claim 39, wherein the polyolefin layer is 2.5 to 20 mils in thickness.</p>	<p>Sherman-1999: p. 47, left col., third par. through middle col., third par.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
Claim 42. The multilayer structure of claim 39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	<p>Gloss is a material property. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p> <p>Sherman-1999 specifically discloses a 60° gloss value of greater than 75: p. 46, left col., first par.; p. 46, right col. first par.</p>
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
Claim 53. The multilayer structure of claim 40, wherein the backing layer is 3 to 500 mils in thickness.	Sherman-1999: p. 47, left col.,
Claim 55	
55 [A]. A formed product comprising:	Sherman-1999: p. 46, left col., first par.; p. 46, right col. first par.
[55.B] a polyolefin layer;	Sherman-1999: p. 47, first col., par. 2.
[55.C] a thermoplastic polyolefin backing layer;	Sherman-1999: p. 46, left col., par. 1; p. 46, middle col., par. 3; p. 46, right col., last par.; p. 47, left col., par. 1; p. 47, entire middle col. and right col.
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Sherman-1999: p. 46, middle col. par. 2; p. 47, middle col., par. 3 Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[55.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Sherman-1999 reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[55.F] the formed product has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
	<p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>
<p>[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>
Claim 77	
<p>77[A]. A method of making a multilayer structure comprising:</p>	<p>Sherman-1999: p. 46, right col. first par.; p. 46, middle col. par. 2; p. 47, middle col., par. 3.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
<p>[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;</p>	<p>Sherman-1999: p. 46, left col., par. 1; p. 46, right col. par. 1; p. 46, middle col. par. 2; p. 46, middle col., par. 3; p. 47, first col., par. 2; p. 47, entire middle col. and right col.</p>
<p>[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;</p>	<p>Sherman-1999: p. 46, left col., par. 1; p. 46, right col. par. 1; p. 46, middle col. par. 2; p. 46, middle col., par. 3; p. 47, first col., par. 2; p. 47, entire middle col. and right col.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p> <p>No adhesive layer or use is disclosed in the Sherman-1999 reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[77.D] wherein the multilayer structure has the characteristics of at least one of:</p>	<p>The (A) and (B) properties are listed as alternatives, thus only one must be met.</p>
<p>[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and</p>	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-1999
	<p>processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-1999 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-1999.</p>
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

Chart V

Claim 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(b) by Sherman-2000

Claim of U.S. Pat. No. 8,007,902	Citations to Sherman-2000
[*bracketed numbers and letters added for reference purposes]	
Claim 36	
36. [A] A multilayer structure comprising:	Sherman-2000: p. 41, right col.
[36.B] a polyolefin layer;	Sherman-2000: p. 41, right col. par. 2.
[36.C] a colored polyolefin backing layer	Sherman-2000: p. 42, picture and caption to picture; p. 41, right col. par. 2; p. 41, right col., second par.; p. 42, left col., first par.
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>The term "random microstructure" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term.</p> <p>Thus, the polyolefin backing layer of Sherman-2000 (p. 42, picture and caption to picture; p. 41, right col. par. 2; p. 41, right col., second par.; p. 42, left col., first par.) has a random microstructure.</p>
[36.E] the polyolefin and backing layers are	Sherman-2000:

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
coextruded and are permanently bonded at a layer interface;	p. 41, right col. par. 1 and par. 2. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[36.F] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Sherman-2000 reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[36.G] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.
[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an	The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
<p>angle of 30 degrees.</p>	<p>under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.</p>

Chart VI

Claims 39, 42, 46, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(b) by Sherman-2000

Claim of U.S. Pat. No. 8,182,906	Citations to Sherman-2000
[*bracketed numbers and letters added for reference purposes]	
Claim 39	
39[A]. A multilayer structure comprising	Sherman-2000: p. 41, right col.
[39.B] a polyolefin layer;	Sherman-2000: p. 41, right col. par. 2.
[39.C] a thermoplastic polyolefin backing layer;	Sherman-2000: p. 41, right col. par. 2; p. 41, right col., second par.; p. 42, left col., first par.
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Sherman-2000: p. 41, right col. par. 1 and par. 2. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[39.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Sherman-2000 reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[39.F] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
	<p>material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.</p>
<p>Claim 42. The multilayer structure of claim 39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	<p>Gloss is a material property. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
	2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.</p>
Claim 55	
55 [A]. A formed product comprising:	Sherman-2000: p. 41, right col., second par.; p. 42, picture and caption to picture.
[55.B] a polyolefin layer;	Sherman-2000: p. 41, right col. par. 2.
[55.C] a thermoplastic polyolefin backing	Sherman-2000:

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
layer;	p. 41, right col. par. 2; p. 41, right col., second par.; p. 42, left col., first par.
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Sherman-2000: p. 41, right col. par. 1 and par. 2. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[55.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Sherman-2000 reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[55.F] the formed product has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.
[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C.	The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
temperature, and at an angle of 30 degrees.	<p>the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.</p>
Claim 77	
77[A]. A method of making a multilayer structure comprising:	Sherman-2000: p. 41, right col.
[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;	Sherman-2000: p. 41, right col. par. 2; p. 42, picture and caption to picture; p. 41, right col. par. 2; p. 41, right col., second par.; p. 42, left col., first par.
[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;	<p>Sherman-2000: p. 41, right col. par. 1 and par. 2.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p> <p>No adhesive layer or use is disclosed in the Sherman-2000 reference.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Sherman-2000
	<p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[77.D] wherein the multilayer structure has the characteristics of at least one of:</p>	<p>The (A) and (B) properties are listed as alternatives, thus only one must be met.</p>
<p>[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and</p>	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Sherman-2000 (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Sherman-2000.</p>
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

Chart VII**Claim 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(b) by Hogan**

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
Claim 36	
36. [A] A multilayer structure comprising:	Hogan: p. 1127, left col., par. 1 (Abstract); p. 1129, right col., par. 3.
[36.B] a polyolefin layer;	Hogan: p. 1129, right col., par. 3; p. 1132, Table 3, bottom row
[36.C] a colored polyolefin backing layer	Hogan: p. 1128, right col., last par.
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>The term "random microstructure" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layer of Hogan (p. 1128, right col., last par.) has a random microstructure.</p>
[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Hogan: p. 1127, left col., par. 1, p. 1129, right col., par. 3.

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
	<p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
<p>[36.F] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive layer or use is disclosed in the Hogan reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[36.G] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>
<p>[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
	<p>the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>

Chart VIII

Claims 39, 40, 42, 46, 53, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(b) by Hogan

Claim of U.S. Pat. No. 8,182,906	Citations to Hogan
[*bracketed numbers and letters added for reference purposes]	
Claim 39	
39[A]. A multilayer structure comprising	Hogan: p. 1127, left col., par. 1 (Abstract); p. 1129, right col., par. 3.
[39.B] a polyolefin layer;	Hogan:
[39.C] a thermoplastic polyolefin backing layer;	Hogan: p. 1127, left col., par. 1; p. 1127, right col., par. 4; p. 1128, right col., par. 3; p. 1129, left col., par. 3; p. 1129, right col., par. 3; p. 1132, Table 3, bottom row.
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Hogan: p. 1127, left col., par. 1, p. 1129, right col., par. 3 Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[39.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Hogan reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[39.F] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
	<p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>
<p>Claim 40. The multilayer structure of claim 39, wherein the polyolefin layer is 2.5 to 20 mils in thickness.</p>	<p>Hogan: p. 1129, right col., par. 3.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
Claim 42. The multilayer structure of claim 39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	Gloss is a material property. The properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>
Claim 53. The multilayer structure of claim 40, wherein the backing layer is 3 to 500 mils in thickness.	Hogan: p. 1129, right col., par. 3.
Claim 55	

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
55 [A]. A formed product comprising:	Hogan: p. 1127, left col., 3rd par.
[55.B] a polyolefin layer;	Hogan: p. 1129, right col., par. 3; p. 1132, Table 3, bottom row.
[55.C] a thermoplastic polyolefin backing layer;	Hogan: p. 1127, left col., par. 1; p. 1127, right col., par. 4; p. 1128, right col., par. 3; p. 1129, left col., par. 3; p. 1129, right col., par. 3; p. 1132, Table 3, bottom row.
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Hogan: p. 1127, left col., par. 1, p. 1129, right col., par. 3 Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[55.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Hogan reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[55.F] the formed product has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
	<p>processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>
<p>[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.</p>
Claim 77	
<p>77[A]. A method of making a multilayer structure comprising:</p>	<p>Hogan: p. 1127, left col., par. 1 (Abstract); p. 1129, right col., par. 3.</p>
<p>[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear</p>	<p>Hogan: p. 1129, right col., par. 3; p. 1132, Table 3,</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;	bottom row; p. 1127, left col., par. 1; p. 1127, right col., par. 4; p. 1128, right col., par. 3; p. 1129, left col., par. 3; p. 1132, Table 3, bottom row.
[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;	Hogan: p. 1127, left col., par. 1, p. 1129, right col., par. 3 Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers. No adhesive layer or use is disclosed in the Hogan reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[77.D] wherein the multilayer structure has the characteristics of at least one of:	The (A) and (B) properties are listed as alternatives, thus only one must be met.
[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and	The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Hogan (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Hogan
	multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Hogan.
[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	

Chart IX**Claim 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(b) by Schut.**

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
Claim 36	
36. [A] A multilayer structure comprising:	Schut: p. 42, middle col., last par; p. 43, caption to picture in upper left corner of page.
[36.B] a polyolefin layer;	Schut: p. 42, right col., second full par.
[36.C] a colored polyolefin backing layer	Schut: p. 42, right col., second full par.
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>The term "random microstructure" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the polyolefin backing layer of Schut (p. 42, right col., second full par.) has a random microstructure.</p>
[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Schut: p. 42, middle col., last par. through right col. second full par.

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
	<p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
<p>[36.F] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive layer or use is disclosed in the Schut.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[36.G] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.</p>
<p>[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
	<p>the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.</p>

Chart X

Claims 39, 40, 42, 46, 53, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(b) by Schut

Claim of U.S. Pat. No. 8,182,906	Citations to Schut
[*bracketed numbers and letters added for reference purposes]	
Claim 39	
39[A]. A multilayer structure comprising	Schut: p. 42, middle col., last par; p. 43, caption to picture in upper left corner of page.
[39.B] a polyolefin layer;	Schut: p. 42, right col., second full par.
[39.C] a thermoplastic polyolefin backing layer;	Schut: p. 42, right col., second full par.
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Schut: p. 42, middle col., last par. through right col. second full par. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[39.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Schut reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[39.F] the structure has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
	dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.
[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.</p>
Claim 40. The multilayer structure of claim 39, wherein the polyolefin layer is 2.5 to 20 mils in thickness.	Schut: p. 42, right col., second full par.
Claim 42. The multilayer structure of claim	Gloss is a material property. The properties of

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.</p>
Claim 53. The multilayer structure of claim 40, wherein the backing layer is 3 to 500 mils in thickness.	Schut: p. 42, right col. second full par.
Claim 55	

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
55 [A]. A formed product comprising:	Schut: caption of picture on p. 43.
[55.B] a polyolefin layer;	Schut: p. 42, right col., second full par.
[55.C] a thermoplastic polyolefin backing layer;	Schut: p. 42, right col., second full par.
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Schut: p. 42, middle col., last par. through right col. second full par. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[55.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Schut reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.
[55.F] the formed product has a DOI of 70 or greater; and	The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein. In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
	multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.
[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.</p>
Claim 77	
77[A]. A method of making a multilayer structure comprising:	Schut: p. 42, middle col., last par.; p. 43, caption to picture in upper left corner of page; p. 42, middle col., last par. through right col. second full par.
[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;	Schut: p. 43, caption to picture in upper left corner of page; p. 42, middle col., last par. through right col. second full par.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
<p>[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;</p>	<p>Schut: p. 43, caption to picture in upper left corner of page; p. 42, middle col., last par. through right col. second full par.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p> <p>No adhesive layer or use is disclosed in the Howell reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[77.D] wherein the multilayer structure has the characteristics of at least one of:</p>	<p>The (A) and (B) properties are listed as alternatives, thus only one must be met.</p>
<p>[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and</p>	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Schut (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Schut.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Schut
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

Chart XI

Claim 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(b) by the Archived Solvay Webpages ("Solvay")

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
Claim 36	
36. [A] A multilayer structure comprising:	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[36.B] a polyolefin layer;	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[36.C] a colored polyolefin backing layer	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>The term "random microstructures" is broad enough to encompass, e.g., copolymers, and essentially any polyolefin-containing material. All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. Thus, the backing layers</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
	<p>of the Archived Solvay Webpages have random microstructures.</p> <p>Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."</p>
<p>[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;</p>	<p>Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
<p>[36.F] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive layer or use is disclosed in the Solvay reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[36.G] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
	<p>material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>
<p>[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>

Chart XII

Claims 39, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(b) by the Archived Solvay Webpages ("Solvay")

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
Claim 39	
39[A]. A multilayer structure comprising	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[39.B] a polyolefin layer;	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[39.C] a thermoplastic polyolefin backing layer;	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate." Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.
[39.E] the interface is exclusive of an adhesive layer;	No adhesive layer or use is disclosed in the Solvay reference.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
	<p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[39.F] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
	<p>same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>
Claim 55	
<p>55 [A]. A formed product comprising:</p>	<p>Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate." Both pages illustrate formed products (A Cargo Trailer Roof Cap, and roof Caps for Heavy Equipment Road Grader, respectively; see pictures and captions).</p>
<p>[55.B] a polyolefin layer;</p>	<p>Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."</p>
<p>[55.C] a thermoplastic polyolefin backing layer;</p>	<p>Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."</p>
<p>[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;</p>	<p>Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
<p>[55.E] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive layer or use is disclosed in the Solvay reference.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[55.F] the formed product has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>
<p>[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
	<p>processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>
Claim 77	
77[A]. A method of making a multilayer structure comprising:	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate."
[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;	Solvay: US_Cargo.pdf and Caterpillar_Monarch.pdf: "High-gloss cap layer of INDURE E1500 engineered polyolefin co-extruded over a SEQUEL E3000 TPO substrate." Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers. No adhesive layer or use is disclosed in the Solvay reference. Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Citations to Archived Solvay Webpages ("Solvay")
<p>[77.D] wherein the multilayer structure has the characteristics of at least one of:</p>	<p>The (A) and (B) properties are listed as alternatives, thus only one must be met.</p>
<p>[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and</p>	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used by Solvay (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the materials of Solvay.</p>
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

Chart XIII

Claims 1, 5, 10, 11, 21, 23, 25, and 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(a) and §102(b) by Prior Sales of Formalloy HG

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '902 Patent
Claim 1	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
1 [A] A multilayer structure comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.B] a clear polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.C] a colored polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.D] a polyolefin backing layer	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.E] with a random microstructure;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.F] the colored and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.G] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.H] the structure has a DOI of 70 or greater;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.I] and the structure passes a gravelometer impact test per the GM9508P standard, with a	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '902 Patent
10 pt load, at a -30°C. temperature, and at an angle of 30°.	
Claim 5. The multilayer structure of claim 1, wherein the clear layer, the color layer, and the backing layer are permanently bonded at a layer interface.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 10. The multilayer structure of claim 1, wherein the structure has a DOI of 85 or greater.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 11. The multilayer structure of claim 1, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 21. The multilayer structure of claim 1, wherein the multilayer structure is a formed product.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 23. The multilayer structure of claim 1 wherein the multilayer structure is exclusive of paint.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 25. The multilayer structure of claim 1 wherein the multilayer structure is free of any	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '902 Patent
adhesive between the clear and color layers and between the color and backing layers.	the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 36	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
36. [A] A multilayer structure comprising:	The Formalloy HG product is a multilayered structure.
[36.B] a polyolefin layer;	The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[36.C] a colored polyolefin backing layer	The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. In addition, TPO materials that comprise a filler, a color concentrate, or other additive materials also have random</p>

<p>Claim of U.S. Pat. No. 8,007,902</p> <p>[*bracketed numbers and letters added for reference purposes]</p>	<p>Formalloy HG Sold Before the Earliest Priority Date of the '902 Patent</p>
	<p>microstructures due to the inherent random distribution of the additives on the polymer matrix. Thus the polyolefin backing layer of Formalloy HG has a random microstructure.</p> <p>The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer. the backing layer contains a color concentrate.</p>
<p>[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;</p>	<p>The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
<p>[36.F] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive was used in the Formalloy HG product.</p>
<p>[36.G] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in</p>

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '902 Patent
	<p>the manufacture of the Formalloy HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Formalloy HG product.</p>
<p>[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Formalloy HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Formalloy HG product.</p>

Chart XIV

Claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(a) and §102(b) by Prior Sales of Formalloy HG

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
Claim 1	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
1 [A] A multilayer structure comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.B] a clear polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.C] a colored polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.D] a polyolefin backing layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.E] the colored and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.F] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.G] the structure has a DOI of 70 or greater;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.H] and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30°.	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
Claim 8. The multilayer structure of claim 1, wherein the structure has a DOI of 85 or greater.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 20	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
20. [A] A coextruded formed product comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.B] a clear polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.C] a colored polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.D] a polyolefin backing layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.E] the colored and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 39	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
39[A]. A multilayer structure comprising	The Formalloy HG product is a multilayered structure that comprises a colored high gloss

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
	polyolefin cap layer coextruded over a colored TPO base layer.
[39.B] a polyolefin layer;	The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[39.C] a thermoplastic polyolefin backing layer;	The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	<p>The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
[39.E] the interface is exclusive of an adhesive layer;	<p>No adhesive layer was used in the manufacture of the Formalloy HG product.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
[39.F] the structure has a DOI of 70 or greater; and	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
	<p>processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Formalloy HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Formalloy HG Product.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Formalloy HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Formalloy HG product.</p>
<p>Claim 40. The multilayer structure of claim 39, wherein the polyolefin layer is 2.5 to 20 mils in thickness.</p>	<p>Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i>, 201 F.3d 1363, 1366 (Fed. Cir.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
	2000).
Claim 42. The multilayer structure of claim 39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 53. The multilayer structure of claim 40, wherein the backing layer is 3 to 500 mils in thickness.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 55	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
55 [A]. A formed product comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.B] a polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.C] a thermoplastic polyolefin backing layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
[55.E] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.F] the formed product has a DOI of 70 or greater; and	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 77	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
77[A]. A method of making a multilayer structure comprising:	The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;	The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;	<p>The Formalloy HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Formalloy HG Sold Before the Earliest Priority Date of the '906 Patent
	<p>No adhesive layer was used in manufacture of the Formalloy HG product.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[77.D] wherein the multilayer structure has the characteristics of at least one of:</p>	<p>The (A) and (B) properties are listed as alternatives, thus only one must be met.</p>
<p>[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and</p>	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Formalloy HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Formalloy HG product.</p>
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

Chart XV

Claim 1, 5, 10, 11, 21, 23, 25, and 36 of U.S. Patent No. 8,007,902 is Anticipated Under 35 U.S.C. §102(a) and §102(b) by prior Sales of Extreme HG

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Priority Date of the '902 Patent
Claim 1	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
1 [A] A multilayer structure comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.B] a clear polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.C] a colored polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.D] a polyolefin backing layer	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.E] with a random microstructure;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.F] the colored and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.G] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.H] the structure has a DOI of 70 or greater;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.I] and the structure passes a gravelometer impact test per the GM9508P standard, with a	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Priority Date of the '902 Patent
10 pt load, at a -30°C. temperature, and at an angle of 30°.	
Claim 5. The multilayer structure of claim 1, wherein the clear layer, the color layer, and the backing layer are permanently bonded at a layer interface.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 10. The multilayer structure of claim 1, wherein the structure has a DOI of 85 or greater.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 11. The multilayer structure of claim 1, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 21. The multilayer structure of claim 1, wherein the multilayer structure is a formed product.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 23. The multilayer structure of claim 1 wherein the multilayer structure is exclusive of paint.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 25. The multilayer structure of claim 1 wherein the multilayer structure is free of any	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe

Claim of U.S. Pat. No. 8,007,902 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Priority Date of the '902 Patent
adhesive between the clear and color layers and between the color and backing layers.	the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 36	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
36. [A] A multilayer structure comprising:	The Extreme HG product is a multilayered structure.
[36.B] a polyolefin layer;	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[36.C] a colored polyolefin backing layer	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[36.D] with a random microstructure;	<p>The phrase "random microstructure" is indefinite under the second paragraph of 35 U.S.C. §112, and is not described in the specification in a manner sufficient to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>All polyolefin polymers consist of random mixtures of polymer chains of different lengths/molecular masses, and thus have random microstructures, in at least one sense of that term. In addition, TPO materials that comprise a filler, a color concentrate, or other additive materials also have random microstructures due to the inherent random</p>

<p>Claim of U.S. Pat. No. 8,007,902</p> <p>[*bracketed numbers and letters added for reference purposes]</p>	<p>Extreme HG Sold Prior to the Priority Date of the '902 Patent</p>
	<p>distribution of the additives on the polymer matrix. Thus the polyolefin backing layer of Extreme HG has a random microstructure.</p> <p>The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer. the backing layer contains a color concentrate.</p>
<p>[36.E] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;</p>	<p>The Extreme HG product is a multilayered structures that comprise a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p>
<p>[36.F] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive was used in the Extreme HG product.</p>
<p>[36.G] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Extreme HG product</p>

<p>Claim of U.S. Pat. No. 8,007,902</p> <p>[*bracketed numbers and letters added for reference purposes]</p>	<p>Extreme HG Sold Prior to the Priority Date of the '902 Patent</p>
	<p>(coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Extreme HG product.</p>
<p>[36.H] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Extreme HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Extreme HG product.</p>

Chart XVI

Claims 1, 4, 8, 20, 39, 40, 42, 46, 53, 55, and 77 of U.S. Patent No. 8,182,906 are Anticipated Under 35 U.S.C. §102(a) and §102(b) by Prior Sales of Extreme HG

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
1 [A] A multilayer structure comprising:	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.B] a clear polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.C] a colored polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.D] a polyolefin backing layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.E] the colored and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.F] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.G] the structure has a DOI of 70 or greater;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[1.H] and the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30°.	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 4. The multilayer structure of claim 1, wherein the structure has a gloss of 75 or	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 8. The multilayer structure of claim 1, wherein the structure has a DOI of 85 or greater.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 20	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
20. [A] A coextruded formed product comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.B] a clear polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.C] a colored polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.D] a polyolefin backing layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.E] the colored and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.F] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[20.G] the formed product has a DOI of 70 or	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
greater; and	F.3d 1363, 1366 (Fed. Cir. 2000).
[20.H] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 39	Under Federal Circuit law, ASI's accusation that Extreme HG and Formallooy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
39[A]. A multilayer structure comprising	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[39.B] a polyolefin layer;	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[39.C] a thermoplastic polyolefin backing layer;	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[39.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer. Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
<p>[39.E] the interface is exclusive of an adhesive layer;</p>	<p>No adhesive layer was used in the manufacture of the Extreme HG product.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
<p>[39.F] the structure has a DOI of 70 or greater; and</p>	<p>The limitation that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" is indefinite under the second paragraph of 35 U.S.C. §112, and also is not described in the specification in a manner sufficient to meet the written description and enablement requirements of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials and processing conditions used in the manufacture of the Extreme HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Extreme HG product.</p>
<p>[39.G] the structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.</p>	<p>The requirement that the structure (or formed product, as the case may be) "passes" the specified gravelometer test is indefinite under the second paragraph of 35 U.S.C. §112, and also fails to meet the written description and enablement requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the</p>

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
	material. In the present case, the raw materials and processing conditions used in the manufacture of the Extreme HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Extreme HG product.
Claim 40. The multilayer structure of claim 39, wherein the polyolefin layer is 2.5 to 20 mils in thickness.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 42. The multilayer structure of claim 39, wherein the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 46. The multilayer structure of claim 39, wherein the structure has a DOI of 85 or greater.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 53. The multilayer structure of claim 40, wherein the backing layer is 3 to 500 mils in thickness.	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 55	Under Federal Circuit law, ASI's accusation that Extreme HG and Formalloy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
	and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
55 [A]. A formed product comprising:	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.B] a polyolefin layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.C] a thermoplastic polyolefin backing layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.D] the polyolefin and backing layers are coextruded and are permanently bonded at a layer interface;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.E] the interface is exclusive of an adhesive layer;	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.F] the formed product has a DOI of 70 or greater; and	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
[55.G] the formed product passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30° C. temperature, and at an angle of 30 degrees.	See <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
Claim 77	Under Federal Circuit law, ASI's accusation that Extreme HG and Formallooy HG infringe the '902 and '906 patents satisfies PolyOne's burden of showing anticipation based on these and other prior sales. <i>Vanmoor v. Wal-Mart Stores, Inc.</i> , 201 F.3d 1363, 1366 (Fed. Cir. 2000).
77[A]. A method of making a multilayer structure comprising:	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored

Claim of U.S. Pat. No. 8,182,906 [*bracketed numbers and letters added for reference purposes]	Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent
	TPO base layer.
[77.B] coextruding a clear polyolefin layer, a colored polyolefin layer, or both a clear polyolefin layer and colored polyolefin layer, together with a polyolefin backing layer, to form a multi-layer structure;	The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.
[77.C] wherein each coextruded layer is permanently bonded at a layer interface, and the interface is exclusive of an adhesive layer;	<p>The Extreme HG product is a multilayered structure that comprises a colored high gloss polyolefin cap layer coextruded over a colored TPO base layer.</p> <p>Permanent bonding at a layer interface is inherent in coextrusion of two polyolefin polymers.</p> <p>No adhesive layer was used in the manufacture of the Extreme HG product.</p> <p>Coextrusion implies that no adhesive is used between the layers, unless otherwise indicated.</p>
[77.D] wherein the multilayer structure has the characteristics of at least one of:	The (A) and (B) properties are listed as alternatives, thus only one must be met.
[77.E] (A) a DOI of 70 or greater; and the multilayer structure passes a gravelometer impact test per the GM9508P standard, with a 10 pt load, at a -30°C. temperature, and at an angle of 30 degrees; and	<p>The limitations that the structure (or formed product, as the case may be) "has a DOI of 70 or greater" and "passes" the specified gravelometer test, are indefinite under the second paragraph of 35 U.S.C. §112, and fail to meet the requirements of the first paragraph of 35 U.S.C. §112, as described elsewhere herein.</p> <p>In addition, the properties of a material are dictated by the structural features of the material, which can be influenced by the processing conditions used by make the material. In the present case, the raw materials</p>

<p>Claim of U.S. Pat. No. 8,182,906</p> <p>[*bracketed numbers and letters added for reference purposes]</p>	<p>Extreme HG Sold Prior to the Earliest Priority Date of the '906 Patent</p>
	<p>and processing conditions used in the manufacture of the Extreme HG product (coextrusion of two polyolefin layers) are the same as those taught by the '902 and '906 patents. Consequently, any properties of the multilayer structures of specified in the '902 and '906 patents necessarily would be present in the Extreme HG product.</p>
<p>[77.F] (B) the polyolefin of a top layer selected from the clear and the color layer, has a Rockwell hardness of 80R or greater; and the structure has a gloss of 75 or greater at a 60° angle and a gloss of 60 or greater at a 20° angle.</p>	

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Respectfully submitted,

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CERTIFICATE OF SERVICE

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